

The Canadian Medical Monthly

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SEPTEMBER, 1920

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THE CANADIAN MEDICAL MONTHLY

VOLUME V

SEPTEMBER, 1920

NUMBER 9

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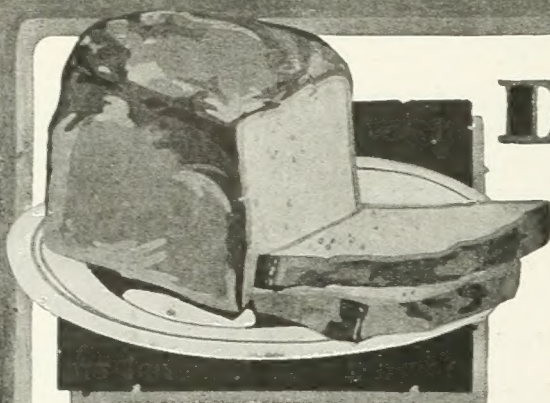
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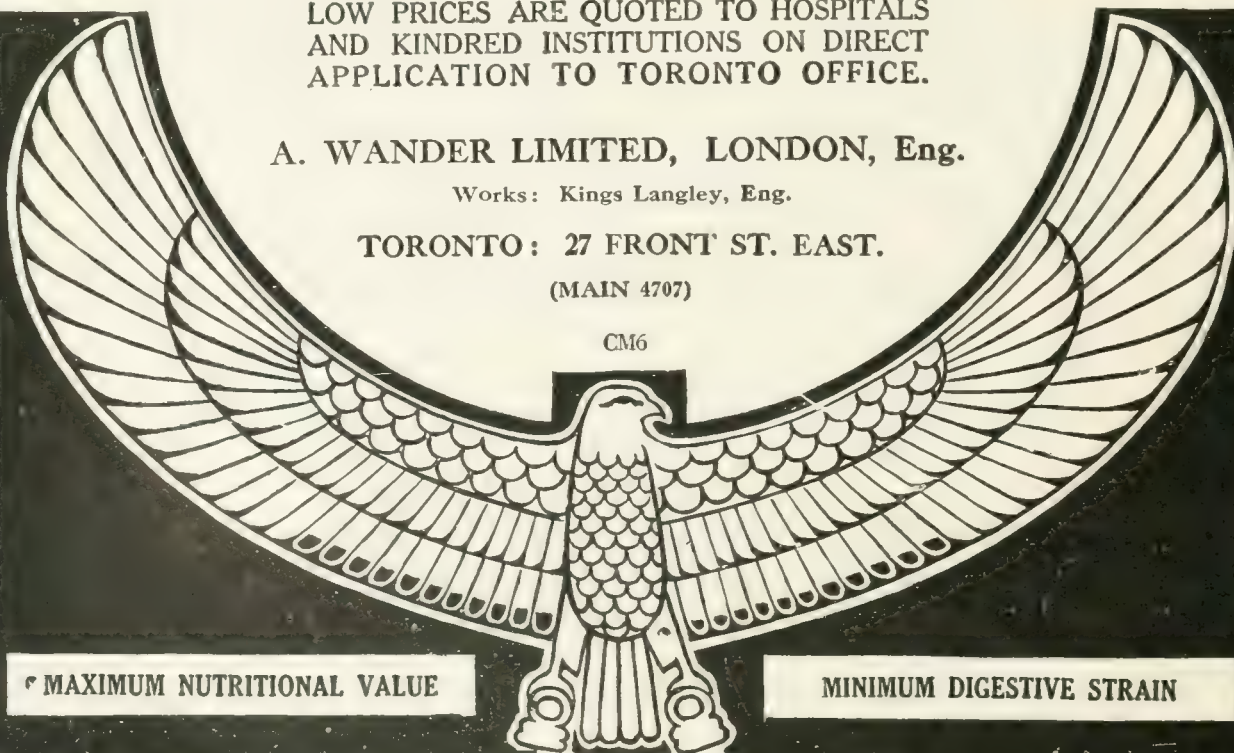
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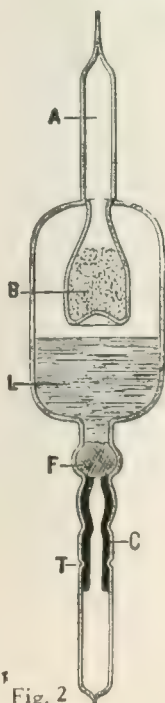


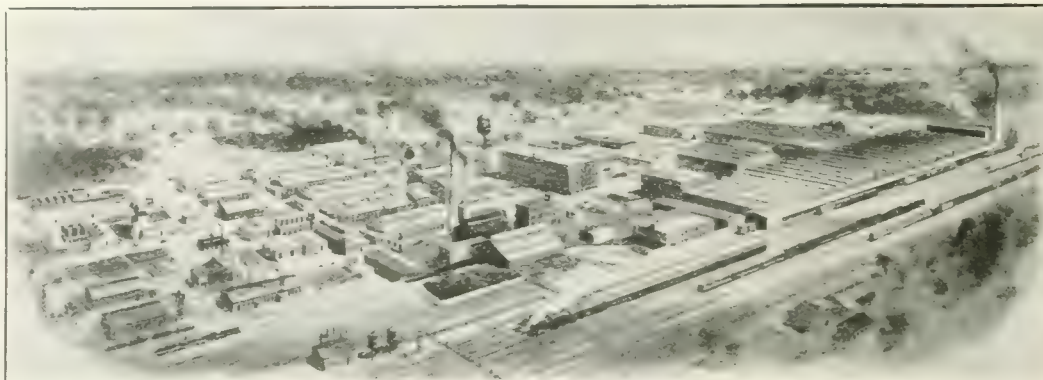
Fig. 2



Fig. 3



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The Canadian Medical Monthly

VOL. V., No. 9

TORONTO, CANADA

SEPTEMBER, 1920

EDITORIAL QUACK ADVERTISING

"I was a great sufferer for many years, until finally a neighbor advised me to try a bottle of Dr. Blank's Wonder Cure, and now I am glad to say that I never felt better in my life."

How many times during the year do we see such information published in our newspapers, house-dodgers and daily mail, and what percentage of the credulous populace swallows this encouraging news holus bolus and runs to the nearest drug store to deposit a certain sum of money to the credit of Dr. Blank? The amount of money which is expended in Canada each year on nostra and patent cure alls runs into figures which are astounding. The gullability of our people, if we are to judge by the increased amount of quack advertising, is on the increase. Occasionally a testimonial announces the fact that "Doctors failed to help me" but just as often the booster admits that "I tried almost everything before I procured your remedy." Such advertising usually contains testimonials obtained from some very remote locality to the one in which the testimonial is published. Maybe distance lends enchantment, or on the other hand, is somewhat of a safeguard against too much probing.

It is a well known fact that testimonials have been secured under very suspicious circumstances. Some are paid for, others are signed by aged people unaccountable for their actions by senility, but such testimonials carry their weight just the same, as our friend the quack who poses as such a good Samaritan, is not spending his money in the daily press unless returns more than commensurate with his outlay are in evidence.

Has the medical profession any duty to perform in connection with this rampant and outrageous practice? Are the rights and privileges of the citizens being properly guarded by practitioners refraining from hounding down what

is known to be crookery and swindling? Has it ever occurred to any practitioner to quietly investigate a single case of a testimonial emanating from his own locality? Have practitioners ever realized the service which is theirs to perform by reporting to the medical authorities cases of bodily harm resulting from the use of nostras which have come to their notice? The medical profession may stand up in convention and assembly met deploring and scourging until doomsday the fraudulent methods of these money grabbers, but until such time as the profession in a business like manner uses its knowledge and power towards effectively exposing and suppressing the fakirs, all that we have to say does little more than boomerang back to the advantage of the impostors who claim that our denunciation is due to personal financial loss, rather than a desire to protect the public.

A NEW DEFINITION OF DIAGNOSIS

It has been reported that one of the irregular cults in the Province of Alberta gave the following definition of diagnosis: "Diagnosis is the decision of whether to use the knife or drugs, and as we use neither the knife nor drugs we claim that we do not need to be diagnosticians."

Such an enlightening exhibition of reasoning powers will no doubt be of considerable interest to the recognized medical profession. It seems almost too preposterous to believe that any cult could make such a foolish pronouncement. How any sane individual purporting to be capable of treating human maladies could lay his foundation upon such unstable ground is beyond human comprehension.

It would appear from such fundamentals that it is absolutely unnecessary to recognize the difference between smallpox and measles or syphilis and boils. It matters not what illness smites the individual so long as the individual having the case in charge does not use drugs or the scalpel during the course of treatment.

How long are we as a profession going to tolerate such a condition of affairs in our country? If there is any element of virtue in the teachings and knowledge of the irregular cults, the medical profession should endeavor to assimilate and utilize such information, but to passively stand by and permit an admittedly ignorant class to parasite upon our people is a flagrant breach of duty to humanity, whom we serve.

DIGITALIS *

V. E. HENDERSQN, M.A., M.B. Toronto.

It is with great pleasure that I have accepted the invitation of the Chairman of this section to present to the Association the facts in regard to the strength of digitalis preparations as obtained by physicians and patients. At the present moment in Canada the only assurance that the profession has that preparations of digitalis, strophanthus, ergot, pituitary, cannabis and adrenalin are of good quality is that quite voluntarily and in the interest of the profession, pharmacologists from time to time test the preparations on the market with appropriate methods and disclose the defects.

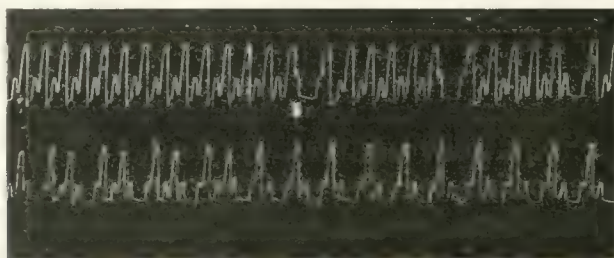
The Pharmacopœa of the United States 1916 requires the pharmacological standardization of digitalis, that of Great Britain of 1914 does not. What would be easier for any firm who prepared and standardized its preparation and did not find it potent enough to place on the market in the United States than to place the same on sale in Canada? Nor can the retail pharmacist protect us in this matter, even were he sufficiently trained and conscientious enough to chemically test the drugs he sells. His knowledge of chemical reactions will not help him in the slightest. Nor can he avoid the difficulty by preparing his own galenicals. Suppose he follows the directions of the pharmacopœia and prepares a tincture of digitalis carefully and exactly. Can he be sure it is potent? Unfortunately he cannot, for its potency depends on that of the leaves, and they vary greatly, depending on their source, age, and the conditions under which they were grown.

To the pharmacologist the testing of digitalis is a relatively simple matter. By injecting graded doses into frogs he can readily ascertain the minimum fatal dose. By checking this against a known standard and chemically pure preparation of strophanthin, he can accurately state whether any preparation of digitalis conforms to the requirements of the U.S.P. or the similar standards suggested and in use in Great Britain or elsewhere by pharmacologists. As the minimum lethal dose the pharmacologist considers the amount that will just suffice to stop the heart of a frog in one hour. I am, of course, not detailing the rather careful and important technical precautions that must be taken in ascertaining this amount.

The physician will naturally wish to know why such an apparently artificial test should denote the real medicinal value of the preparation. May I illustrate this in the following way. The cessation of the frog's heart is due to

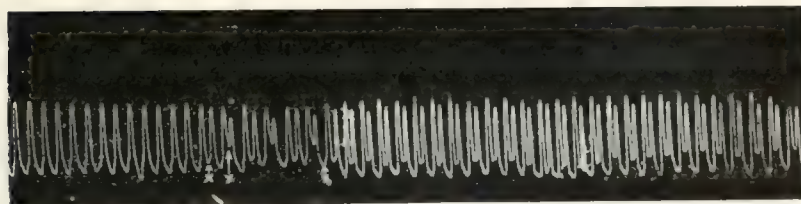
*Department of Pharmacology, University of Toronto. Read before the section of Medicine, Ontario Medical Association, Mon. 1929.

certain changes in its properties which may be studied by other methods. One of these consists in destroying the frog's brain, exposing the heart, and connecting it to a delicate lever which writes on a moving drum covered with smoked paper. If then digitalis be applied the heart is affected in several of its properties, which are illustrated by the following curves, which are taken from cases where one property, owing to the conditions present, was much more affected than the others, though usually all are altered concurrently.



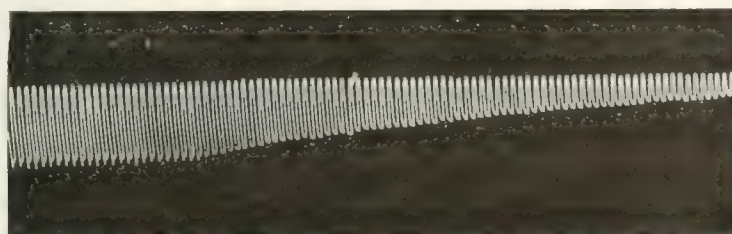
Tracing Number 1. Heart Block (read left to right).

In tracing No. 1, the heart in the upper line is at first beating quite regularly, each little auricle wave being immediately followed by a wave made by the contraction of the ventricle. But in successive waves, reading to the right, the auricular wave becomes more and more distinct, less and less fused with the larger ventricular wave that succeeds it. This is due to the fact that the time of passage of the contraction from auricle to ventricle is becoming longer. The fifteenth auricle wave (at X) appears as a kink in the fall of the ventricle wave owing to the fourteenth ventricular wave being greatly delayed. Then there is a pause owing to the absence of the fifteenth ventricular wave and another auricle wave. These events repeat themselves twice in this line. In the lower line, at first every third ventricular beat is missing and then every other one. This absence of ventricular beats is due to the digitalis lowering the conductivity of the bundle between auricle and ventricle to such an extent that some of the beats fail to pass this block. The heart is showing "heart block" and this is the effect the physician produces when he administers digitalis to a patient suffering from auricular fibrillation, whose heart and pulse rate is 120-160 or over and is entirely and completely irregular. The digitalis produces heart block which is more or less complete. If it is complete the ventricle takes on a rhythm of its own, beating regularly 40-50 or perhaps 60 in the minute. And now much smaller doses of digitalis are sufficient to maintain this condition and presently physician and patient working together find the quantity which will just maintain this beneficial amount of intoxication, and the patient, if he does not expose his heart to fresh strain, may live in comfort for years, taking five, ten, or fifteen drops a day. He is at once in danger, however, if he gets a weaker tincture or a much stronger one.



Tracing Number II. Extra Systoles.

His danger from a stronger one may be illustrated by a consideration of tracing 2. In this case the auricle beats can hardly be seen, and to the point marked by the first X, the beat is normal. At the second X the abnormality is well seen. Some area in the heart musculature has become abnormal, hyperirritable and has begun to generate beats. Its beat reaches the ventricle just as it is relaxing and produces a secondary and smaller contraction (above the second X). This in turn leads to the omission of the next regular ventricular beat, and hence a slight pause. After the third X this abnormality becomes constant and each regular beat is succeeded by a beat from the new source and a pause due to the omission of one of the regular beats. Should other sources of beat production arise, the heart would be forced to an irregular rapid beat incompatible with the maintenance of the circulation and indeed of life itself. Similar effects are produced in man by overdoses of digitalis.



Tracing Number III. Increase in Cardiac Tone.

Another effect of the action of digitalis is also seen in the frog. This consists in a gradual slowing of the beat of both auricle and ventricle, and is due in part to a stimulation of the vagus mechanism, in part to an action of the muscle itself. This is the type of effect produced by digitalis when employed in man to decrease the rate of an unduly rapid but regular heart in man. The rate may be reduced by its inhibition through these mechanisms from about 100 to 90 or 80 a minute. The effect is usually not great, and if pushed there is usually danger of producing unwished-for irregularities. This slowing is the main cause of cardiac arrest in the toxic doses used in standardization. It is, however, accompanied by a fourth effect, shown in tracing 3., which also is an important factor in the frog. In this tracing there is a gradual decrease in the relaxation of the ventricle until its muscle becomes so much shrunken that the auricle is no longer able to force blood into the ventricular chamber. This shrinking or shortening of the muscle due to the action of this drug may be of importance

in man, as it would tend to counteract dilatation. We have, however, no knowledge whether such increase in cardiac tonus actually occurs in man or not.

I think it will now be plain to all that the method of testing tincture of digitalis is competent to determine whether the drug contains the qualities wanted in medicine or not.

During the past year some fifteen samples of digitalis have been tested in the Department of Pharmacology. No real study of the market has therefore been made, but only such samples were examined as were bought by the Department or sent in by one of the hospitals or a physician for examination. Five of the samples were tinctures prepared by Parke, Davis & Co. and were purchased in various drug stores on prescriptions. Four of the five were U.S.P. strength, one about half strength. Three were Tinctures of Burroughs, Welcome and Co., obtained from two of the city Hospitals. One was about three-quarter strength, the others normal. Two were Concentrated Tinctures of the same firm, similarly obtained. One was four times normal tincture strength as it should have been, one only normal strength, that is only one-quarter of its supposed potency. This sample was found on inquiry to be an old specimen from a bottle which had probably been opened for some months. The same was found to be true of the tincture of this firm, found to be below strength. This may be the reason of the low titre obtained in other cases. Five samples were examined which were prepared by local firms or were of unknown origin. All were purchased by prescription. One was about $2\frac{1}{2}$ times normal strength, one about $\frac{1}{8}$ strength, and the other approximately normal.

It has been found by other investigators that Tincture of Digitalis deteriorates on keeping.^(3,4) Deterioration of Tinctures made with 70% alcohol or over is less rapid than when prepared with weaker alcohols. The deterioration varies from 8—30% per annum. Opening the bottle probably accelerates deterioration. Dilution with water or watery solutions may lead to a very rapid deterioration. That is a decline of half strength in a few days. Acid or alkaline solutions added to the Tincture will very rapidly decrease its action.⁽⁵⁾

All those who have studied the strengths of the numerous special and proprietary preparations of digitalis, strongly advise the practitioner to use an official tincture prepared by a reliable pharmaceutical house, physiologically standardized, and less than a year old. The specialized and proprietary forms have been found to vary greatly in strength and possess no real advantage over the tinctures, save possibly when needed for intravenous administration.

The Department of Pharmacology of the University of Toronto offers to examine any tinctures of digitalis submitted to it by registered practitioner after Sept. 1st, 1920, and before June 1st, 1921. Samples should be not less than one-half ounce, and a statement of their source and age should accompany them if possible. Reports will be sent out as promptly as possible.

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TREATMENT OF ECLAMPSIA.

T. S. FARNCOMB, M.D., Trenton.

It may seem presumptuous for a general practitioner in a small town to venture an opinion on a subject which has been a bone of contention among the leading obstetricians of the world for centuries. But on the other hand, the family physician though possibly lacking the scientific knowledge and technical skill of the specialist, takes a very deep personal interest in his efforts to save the life of his patient and her babe and possibly if one could get a detailed statement from the general practitioners throughout the country, the mortality records might compare favorably with those so carefully prepared for publication by specialists.

I think everyone who has ever seen a case of eclampsia will agree that if the patient is already in labor the sooner she can safely be delivered the better but the cases to which I wish to refer are those in which a woman in the sixth, seventh and eighth month of pregnancy suddenly goes into convulsions and the medical attendant on his arrival finds an undilated cervix and no symptoms of uterine contractions.

Now a large number of modern obstetricians advocate in their text books and teach their students that the safest and best procedure in a very large majority of these cases is to empty the uterus as rapidly as possible. I wish to raise my voice in protest against this teaching and affirm that in an overwhelming majority of cases the safest treatment both for mother and child is to give large enough doses of morphine to keep the convulsions under control (if possible) and leave the uterus absolutely and entirely alone. If one could feel sure that delivery would put an end to all danger of further convulsions there would be more justification in interfering; but is there any man who has practised obstetrics for a number of years who has not seen terrible attacks of eclampsia which commenced several hours after the termination of apparently normal labor? So that the advocates of this form of treatment cannot even claim that if they successfully deliver their patient she is even then free from danger of further convulsions.

On the other hand we all know that any irritation of the nervous system, even a noise in the room, is liable to bring on a convulsion, so how much more dangerous must be the handling of the patient and the forcible dilation of the cervix? I have a very vivid recollection of a primipara with whom a brother practitioner and myself spent a very anxious night; with a great deal of trouble we succeeded in dilating the cervix and delivering a dead baby.

We stayed with her for three hours after delivery and just as we were congratulating ourselves that the danger was over and we might safely leave her, she had one terrible convulsion and died.

Now look at the other side of the picture. I have seen a number of cases in which women had eclamptic attacks in the sixth, and seventh month and were tided over with morphine, who not only went to full term and were delivered of strong healthy babies but in whom the albumen entirely disappeared from the urine within a few days after the convulsions ceased.

The whole phenomena of eclampsia has always struck me as being very similar to a thunderstorm—before the attack you have the patient in that dull, heavy, lethargic condition which we have all felt before a bad electric storm—then comes the storm itself with the patient's whole nervous system acting very much like the atmosphere does during a severe electric storm; then if the patient is not killed by the shock of the repeated convulsions the storm passes off, quite irrespective of whether the foetus is still in her uterus or not. Usually after several hours of heavy sleep she wakes perfectly conscious, generally the headache is entirely gone, and it is often marvellous how quickly the oedema disappears and the urine becomes normal.

Afterwards one of two things generally happens; either the woman goes on to full term and is delivered of a healthy child, or else in the course of two or three days labor pains come on and she is delivered of a dead foetus which most probably died at the time of the convulsions.

A very few words will suffice to describe what I have found the safest and most satisfactory treatment in this, the most terrible complication of pregnancy. In fact, I think it is the most terrible disease which the medical man has to meet in the whole course of his practice. As soon as the patient is seen she should be given half a grain of morphine with or without atropine. Everything should be kept as quiet as possible, as any noise may bring on a fresh convulsion. If the patient becomes restless, if the face commences to twitch or any symptoms arise which make one suspect the danger of another convulsion, immediately inject another half grain of morphine. Afterwards give a quarter grain after each convulsion no matter how closely they recur. It seems hardly possible to poison a patient with morphine under these circumstances, and anyway, an eclamptic woman in whom the convulsions were not controlled by two grains of morphine administered in the course of three or four hours would most certainly die from the effects of the convulsions if the morphine were not administered. Keep the patient absolutely quiet until all danger of a recurrence of the attack appears to have passed; if she is conscious enough to ask for a drink, give a little water or buttermilk—not sweet milk. Then as soon as all danger of further convulsions is apparently over, eliminate the poison as rapidly as possible both by repeated saline cathartics and by enemata. Keep the patient in bed and on a liquid diet until the œdema has disappeared and the urine is free from albumen.

Of course some cases of eclampsia die and some recover no matter what line of treatment is adopted, but I think the man who keeps his patient well under the influence of morphine and meddles with the uterus as little as possible, will have a much smaller percentage of death certificates to sign than his confrere who systematically empties the uterus.

INFANT FEEDING*

HOWARD SPOHN, M.B., Toronto.

Proper feeding is the most important factor in the early life of each and every individual, and fortunate is he who has his feeding problems solved by being able to procure that unequalled food, Breast Milk. When one considers that a quarter of all deaths in infancy occur in the first year of life, and of these deaths 40% are due to gastro-intestinal disturbances, the importance of the subject is brought home to us. Let us also remember that of the other 60% many might survive if the gastro-intestinal tract were functioning in a normal manner. It is therefore essential to deal with this subject in a scientific and practical manner.

Before entering into some of the details of infant feeding, it might be well to very briefly review a few facts in relation to the physiology and metabolism of the infants' gastro-intestinal tract. It has been proved experimentally that the infants' gastro-intestinal tract is endowed with the same gastric juice—pepsin, lipase, pancreatic juice, etc., as the adult, i.e., it is able to digest and absorb all food stuffs, but of course in relatively smaller amounts than in the adult. The alimentary tract of the infant is in the formative period and in this undeveloped tract must, as in the adult, not only make good the body waste, but also build up the tissue of the fast growing body.

What happens when milk, either woman's or cow's enters the stomach?

1. The curding or coagulation of milk begins within 2-3 minutes after the food reaches the stomach and is completed within 10 minutes. When completed the contents consists of whey and curds. The formation of the curd is a physiologic process to separate the solid from the fluid portions of the milk, and to prepare the solid portion for digestion.

The Separation of Whey and Curds.

2. After the curding, the separation of the fluid whey from the solid curd begins at once, the whey, along with any carbo-hydrates that may be present, passing on into the duodenum, leaving the solid curd behind. By this process, which is completed in half an hour, the carbo-hydrate in solution is the first to leave the stomach, while the casein and fat remain.

The Digestion of the Whey or Casein.

The fundal portion of the stomach now closes down on the curd, bringing the mucous membrane, with its secreting gastric juice, in contact with the food, i.e., the gastric juice acts on the periphery of the curd. As the curd goes into

* Read before the Hastings County Medical Society, July, 1919.

solution the fundus follows down upon the remaining curd, i.e., the digestion of the curd takes place in *the case of mother's milk in $\frac{1}{2}$ to 2 hours*, and in the case of *cow's milk it requires 3 hours*. This difference in time should be noted as it has an important bearing on the frequency of feeding in infants. The digestion of the casein is completed and it passes into the duodenum before the fat, i.e., the order of leaving the stomach is *whey, casein and fat*. About 10% of the fat is split in the stomach and there appears to be some absorption of fat from the stomach.

The Motility of the Stomach and Operation of its Valves.

Before proceeding further it might be as well at this point to discuss the emptying of the stomach and the control of the pyloric valve. The stomach is functionally divided into two portions—the fundal and pyloric portions. The cardiac end of the fundus is in a state of rest, closing down upon the curd and acting as a passive reservoir. In the fundus, gentle wave-like movements of peristalsis begin, which run along, deepening as they go, to the antrum pylori. The function of this movement is to send along the food, liquefied by the process of digestion, towards the pylorus, thus allowing the mucous membrane to come in contact with the solid food remaining.

At the beginning of the antrum pylori the circular band of muscle becomes thicker, and by its forcible contraction divides the stomach into fundal and pyloric portions. The antrum pylori shows a different form of motility from the wave-like peristalsis of the fundus, i.e., it exhibits strong intermittent contraction which forces the liquid products of digestion into the duodenum. Cannon observed that an acid action of the pyloric part of the stomach causes opening of the pylorus. While the stomach contents are alkaline, the pyloric valve remains closed, but opens when the contents become acid. Acid contents of the duodenum close the valve, while alkaline relax it. When the contents are acid on both sides, the duodenal reflex determines the reaction of the valve. When bile and pancreatic juice again render the contents alkaline, the pylorus opens.

The layer-like arrangement of the food in the stomach furnishes a point of practical interest. When solid food enters the stomach it displaces the food that has been previously digested toward the periphery and thus occupies the centre or nucleus of the mass. With milk the opposite arrangement prevails, i.e., the first milk taken is coagulated and the next portion flows about this curd and is coagulated about it in turn, like the layers of an onion. The gastric juice affects the food at the periphery first, and so it happens that with too frequent feedings of milk the curd at the centre remains indefinitely untouched by the gastric juice. This curd at body temperature furnishes an excellent medium for bacteria, and it has been shown that milk having a bacterial count of 10,000 per c.c. when fresh, gave a count of 16,500,000 from the nucleus of the curd undigested in the stomach by too frequent feedings, the count being made $9\frac{1}{2}$ hours after the milk was taken. Irritating volatile acids are also formed by the action of these bacteria. Another point is that water does not mingle with the

solid food in the stomach, but is quickly discharged into the duodenum. The danger of diluting the gastric juice by drinking water after a meal is therefore not very great.

The stomach reduces the solids very completely and in the upper half of the intestines the microscopic remains of curds are rarely seen. The duodenum during the process of digestion is covered with strongly acid fluid, this acid reaction remaining through about half the length of the small intestine. At the lower end of the intestine the fluid is more voluminous and is of a milky color, while at the end of the small intestine the contents take on the characteristics of the stool. Cannon has shown a difference in the functions of the proximal and distal ends of the large intestines. In the ascending and transverse colon peristaltic movements keep the contents here longer than elsewhere in the intestines. The contents are thoroughly kneaded and exposed to prolonged bacterial action. The lower part of the large bowel is the site of true stool formation.

Up to this point we have considered the digestion of milk as a whole. Let us briefly consider the metabolism of the individual constituents of milk, i.e., *Proteid, Fat, Carbo-hydrates*.

Protein Metabolism.

The important forms of protein are casein and lactalbumin. All recent experiments show that the protein of cow's milk is as well taken care of by the infants' metabolism as the protein of mother's milk. Finklestein fed a series of infants on cow's milk protein and mother's milk whey and found they thrived as though they were on mother's milk. He reversed the experiment and fed cow's milk whey and mother's milk casein and found that these babies were subject to the same troubles as though fed on plain milk and water mixtures; the deductions being that most of the trouble in artificial nourishment is in the whey, with a secondary fermentation of carbo-hydrates and fat. In most acute intestinal upsets protein milk, i.e., a mixture high in protein (3-3%), low in fat and sugar 1-5% is used with great success.

It has been shown that in feeding breast and cow's milk where like quantities of nitrogen are taken, like quantities are excreted in the fæces. It has also been found that carbo-hydrates favor nitrogen retention, while fat favors nitrogen excretion.

Most of the curds in the stools are due to fats, fatty acids, bacteria and epithelium. The bean or protein curds can always be eliminated by boiling the milk. Protein is therefore, the most innocent and easily handled of the food constituents. The function of nitrogenous foods or proteids are: (1) to make good the wear and tear of the proteid constituents of the tissues; (2) to add to the body substance by the storage of nitrogen; (3) to furnish heat and energy. (But of course it is the fat and carbo-hydrates that furnish most of the heat). From 2-3% is generally taken well.

Fat Metabolism.

The fat in the body of the foetus and new-born resembles milk fat. Body fat is used as combustible material when the intestinal tract is unable to provide proper material for this purpose. The amount of fat in the child is dependent on the assimilation and composition of the food; the fat children being those fed on breast milk or large quantities of cow's milk with full amount of carbohydrates. Let us remember that obesity of the baby is as much a pathological condition as that of the adult.

From 87 to 98% of the fat taken is absorbed, and 90% of the fat is split in the intestine. The fat absorbed is used for energy and also increases resistance, i.e., a food poor in fat, given over a long period reduces the resistance of the child to infections of various kinds. In infants there exists a tendency to acidosis due to disturbance of fat metabolism. There is an incomplete oxidation of fats in the presence of disturbed carbo-hydrate metabolism. Fat in the food lowers nitrogen retention, i.e., the more fat, the less nitrogen retained. An excess of fat by aiding in the formation of the soap stool favors the excretion of the alkalies (calcium, sodium) from the system, producing a condition of relative acidosis. As the fear of proteid as an injurious agent has disappeared, the fear of fat as the disturbing factor has increased. It is an established fact that a breast fed child thrives on a high percentage of fat (4%), but an artificially fed child rarely stands such amounts and a sick child can be very seriously damaged at times by even the smallest quantities of fat. Fat in mother's milk is more finely divided and has a higher oleic acid content and contains less amounts of volatile acids. The action of fat in delaying gastric digestion has been already mentioned, i.e., it is the last constituent to leave the stomach. In conditions such as pylorospasm a true fat stagnation in the stomach may occur. We do not exceed a 4% fat in feeding. Infants rarely digest more than 3% in milk mixtures and frequently must be given a much lower fat content. The fat contained in 1½ ozs. of whole (4%) milk to the pound of body weight is generally sufficient to cover the fat need of the infant and in most cases is well handled. Many children exhibit a fat intolerance.

Carbo-hydrate Metabolism.

The end digestive products of carbo-hydrates cannot be recognized as such, and it is difficult to determine the exact position of carbo-hydrates in relation to metabolism. Carbo-hydrates produce heat and energy and spare the protein and fat. If fed in too high a concentration as in many patent foods, it produces a distinct water retention. A child can be rated as a good or bad child, depending on its water binding stability. Thus a child which has been fed on a poorly balanced high carbo-hydrate mixture, such as is present in all patent foods, may lose one-third of its weight in a few days, while another child with the same disturbances may lose very little. The child's water binding power has a great deal to do with prognosis and treatment. Sufficient carbo-hydrate is necessary in food mixtures to maintain temperature and weight.

What kinds of sugar can be used to feed infants and which kind is most suitable?

The three types of sugar used are:—

1. Dextri Maltose or Malt Sugar.
2. Lactose or Milk Sugar.
3. Cane or White Sugar.

The Malt sugar is the kind most easily assimilated and is less laxative than the other forms.

Lactose or Milk Sugar is the most fermentable of the sugars. It is the kind of sugar present in mother's milk. There are certain types of cases, such as vomiting babies in which it is advisable to use the sugar of milk.

Cane sugar is the most laxative and irritating, and on that account has to be used more carefully. It is always easy to get and is much cheaper than the other sugars. Do not exceed over 7% carbo-hydrate; usually 5% is all that can safely be given.

The inorganic salts also have an important role in infant metabolism, but their functions have not been satisfactorily worked out. The important salts are Sodium, Potassium, Magnesium, Phosphorous, Calcium and Iron.

In the last decade much time has been spent on the nourishment of infants, and many, perhaps too many methods, some of them most complicated to most of us, have been evolved. We have heard much of the percentage method of feeding, a method which, I am sure, at times, looked to all of us more complicated than many arithmetical or algebraic problems that annoyed us in our pre-medical days. With this method was associated the cream and whey feedings, a method based on the idea that the constituent most difficult to digest in milk was the proteid. As it has been definitely proved that the child is generally capable of handling successfully large quantities of proteid, it does not seem reasonable that this method should survive when we have in the dilution of cow's milk, with the addition of some form of carbohydrate, a method which is simple and is easily carried out. With the method of simple dilution of cow's milk, we can meet most of the problems that arise, if co-related with this dilution we consider the percentage of our ingredients and the caloric needs of the individual.

Let us approach this subject in a practical manner, knowing that if we make sure of certain well-known facts, we can, in the vast majority of cases, with the exercise of patience and care, successfully feed the little ones who have to be nourished artificially. It is important to realize that while all babies have certain common characteristics, each babe is a law unto itself, and the food and formula upon which Mrs. Jones so successfully reared her infant is usually not at all applicable or sufficient to the needs of Mrs. Smith's young charge.

Babies, well or sick, vary too much in their digestive capacities to be fed "en masse." They must be considered as individuals and be fed individually. There are, however, certain definite rules which act as guides or markers of the limits beyond which it is not safe or wise to venture. These guides are

essential in considering and adjusting percentages of ingredients, quantities to be given, frequency of feedings, kinds of foods, etc. It is important and essential to give written instructions to the mother regarding preparation, etc., of the feeding.

Having reviewed briefly the metabolism of the different constituents of cow's milk, we turn our attention to the best way to administer the cow's milk mixture. We must always bear in mind that the requirements of a normal child with a normal digestion are entirely different from the requirements of a sick child. There are two methods of making this dilution:

1. Simple whole milk dilution with added sugar or starch.
2. The dilution of a higher fat milk, i.e., the dilution of a 7% milk, obtained by using the upper half of a quart bottle of milk. If 7% milk is used the amount should be 1-4 to 1-3 less than the amount of whole milk used. The use of the upper half milk should be confined to those children who are able to take a higher percentage of fat than can be obtained by whole milk dilution. Such children are relatively few in number and as it has been conclusively proved that the vast majority of children can be fed successfully on whole milk dilution, it is with whole milk dilutions therefore, that I will deal especially.

The Caloric Requirements.

The human body resembles a steam engine, in that it converts fuel or food into energy and heat. The amount of work to be done determines the amount of fuel to be used. The food values are estimated in terms of heat production, using as a unit the "calory" i.e., the amount of heat necessary to raise 1 c.c. of water 1° centigrade. The infants' food consisting largely of milk and carbohydrates, it is easy for us to figure up the requirements for the days' needs. A normal infant shortly after birth should receive on the average 45 cal. per lb. of body weight. At 6 months to one year approximately 40 cal. Premature infants require from 50 to 65 cal. per lb., depending on their age and development. Under-fed babies not suffering from marasmus (decomposition) must be fed a higher caloric value per lb. of body weight than a normal infant, always remembering what their normal weight should be for the corresponding age. It is always necessary to remember the caloric value of certain foods.

1 oz. of 7% milk.....	27 calories.
1 oz. of whole milk	20 "
1 oz. of breast milk	20 "
1 oz. of 2% milk	15 "
1 oz. of sugar by weight	120 "
1 oz. of starch by weight	120 "

And likewise it is important to bear in mind the composition of breast and cows' milk.

	Fat.	C.H.	Pro.
Breast milk	4.	7.	1.
Cow's milk	4.	4.50	3.50

i.e. a difference in sugar and proteid.

How much water or diluent should be added? This we obtain by allowing 3 ozs. for each lb. of weight in the early months, and up to 40 ozs. in the latter half of the first year. Therefore for a 10 lb. baby give $10 \times 3 = 30$ ozs. per day. Another way to approximate the quantity at a feeding is to give an amount of food approximating 2 ozs. more per feeding than the infant is months old, i.e., 5 months give 7 ozs. at a feeding.

A simple method of calculating a milk formula for a normal baby on the basis of caloric requirements is to start on the amount of protein of cow's milk necessary. This amount has been found to be furnished in $1\frac{1}{2}$ ozs. of milk for each pound of weight. This furnishes sufficient nitrogen for nutrition. Therefore an infant weighing 10 lbs. requires 15 ozs. of milk in 24 hours. His caloric requirements are $45 \times 10 = 450$ cal.

Now 15 ozs. of milk will give him $15 \times 20 = 300$ cal.

Therefore he will need of fat or carbo-hydrates $450 - 300 = 150$ cal.

Now 1 oz. of sugar furnishes 120 cal. so that $1\frac{1}{4}$ ozs. of sugar added would give the needed 150 cal.

The formula then would be:

15 oz. milk	300 cal.
$1\frac{1}{4}$ ozs. sugar	150 cal.
15 oz. water	

Thus 30 ozs. could be given in 7 feedings of $4\frac{1}{4}$ ozs. each or 6 feedings of 5 ozs. each. The approximate percentage of the whole formula, using 4% milk would be:—

Fat, 2%; Sugar, 6.2%; i.e., $2.25 + 4\%$ added sugar; Protein, 1.75.

In figuring out the percentage in mixture it is of assistance to remember that:

By weight:—

1 oz. of any sugar in 20 ozs. of mixture adds 5%.

1 oz. of any starch in 20 ozs. of mixture adds 3.5%.

As another example of making a formula, a child 1 month old weighs 8 lbs. requires

1 oz. of sugar to be added, so deduct..... 120 cal.

Therefore No. of cal. to be supplied by milk..... 240 cal.

No. of ozs. of milk $240 \div 20 = 12$ ozs.

Formula:—

Milk	12 ozs.
Water	12 ozs.
Dextri Maltose	1 oz.

Percentage

Fat	C.H.	Pro.
4	4.50	3.50
2	2.25	1.75

But 1 oz. of sugar was added, so sugar percentage— $2.25 + 4.2 = 6.4$.

The following practical rules may be of service.

1. Normal infants each day require a quantity of milk equal to $1/10$ their body weight.
2. Normal infants require $1\frac{1}{2}$ oz. milk per pound body weight.
3. Premature infants may require more, even up to 3 ozs. per lb. for satisfactory gain.
4. Food increases should be gradual, beginning with weak mixtures. Usually start young infants on 7 ozs. of milk in 20 ozs. mixture.
5. After the fourth month the average baby will take daily 30 ozs. of a food mixture; when more than 40 ozs. is needed we have reached the age when a mixed diet is indicated.
6. At no time should more than $1/5$ of the body weight in milk be fed daily.
7. Great dilution of the milk is of less importance than is usually supposed. The following dilutions are approximate when the feeding rules are properly applied:
 - 1st month— $1/3$ milk to $1/2$ water plus 3 to 5% sugar.
 - 2nd to 5th month— $2/3$ milk to $1/3$ water plus 3 to 5% sugar.
 - 5th to 9th month— $3/4$ milk to $1/4$ water plus 3 to 5% sugar.
 - 10th to 12th month—Whole milk without sugar.

Mixed Feeding.

As early as 4th month 1 to 2 teaspoonsful of orange juice may be given daily.

At 6th month a little well cooked cereal may be added to one of the meals, adding part of the bottle formula to it.

A tendency to stationary weight is often relieved by addition of 1 to 2% of starch ($1/4$ to $1/2$ oz.)

At the 6th or 7th month most infants readily take a broth and vegetable meal, either with a small amount of formula or as a substitute for a milk feeding.

At the 9th or 10th month a vegetable soup or a clear broth (chicken, lamb or veal) and toast or Zweiback crumbs, with an additional portion of stewed fruit (apples or prunes) or a strained vegetable (spinach, carrots, or turnips) may be given. The broth may be given in quantities of 3 to 5 ozs. and vegetables in 1—2 tablespoonfuls quantities.

Number of Feedings in 24 Hours.

Only water for 12—14 hours, after this for the first few days feed q 3 h x 7 feedings. Then the remainder of week 3 ozs. of half and half. Then the normal baby does much better fed q 4 h (6 feedings in 24 hours), the best hours 2—6—10 a.m. and p.m. The four hour interval is especially to be recommended in breast feeding on account of the high fat content. After the fifth month give 5 feedings, i.e., at 6—10 a.m. and 2—6—10 p.m.

Rules for Figuring Weights.

The average birth weight is 7 lbs. Average initial loss is 10 ozs. Birth weight usually regains by 14th day. Weight should be doubled at end of 5th month, trebled at end of 1st year. Average weekly gain during first 5 months, 6-7 ozs. During remainder of year 4 ozs.

To sum up, one must know (1) how to figure a baby's normal weight; (2) that the milk should approximate $1\frac{1}{2}$ ozs. per lb. of normal body weight at that age and 3 to 5% sugar added, and if necessary 1% of starch; (3) the total mixture to be given in 24 hours at certain ages; (4) the caloric value of milk, skim milk, buttermilk, sugar, flour, etc.; (5) when to begin mixed feeding. (Remember that the amounts are relative and must be increased or decreased according to infants' progress and individual needs. The food formula of a baby making a satisfactory gain should not be changed without a well defined indication); (6) that a premature infant must be fed smaller amounts and needs more calories per lb. than a normal baby. Roughly the following amounts of dextri malt sugar may be given:—

Infants under 6 lbs., $\frac{1}{2}$ to $\frac{3}{4}$ ozs. in 24 hours.

Infants between 6 to 10 lbs., $\frac{3}{4}$ to 1 oz. in 24 hours.

Infants between 10 lbs. to 14 lbs. 1 to $1\frac{1}{4}$ ozs. in 24 hours.

Infants over 14 lbs. $1\frac{1}{2}$ ozs. in 24 hours.

Mixed Breast and Artificial Feedings.

If the supply of breast milk is scanty the baby may nurse for a stated time, say 5 to 10 minutes and then supplement with a formula or 1 or 2 formula feedings can be given during the day. This gives the mother a longer interval to rest. It is often advisable, even in normal cases, to give 1 feeding of a formula a day. Even small quantities of good breast milk each day raise the resistance of the child.

Paradoxical Reaction.

Sometimes under the influence of an unsuitable food a child will develop a disturbance of nutrition, in which the tolerance for food is greatly diminished and we have what is called a Paradoxical Reaction, i.e., a failure to gain weight on an increase of food which would produce a gain in a normal child.

Intolerance to Cows' Milk.

Some children exhibit an intolerance for cows' milk. These children form the exudative diathesis type. They have an anaphylaxis for the proteid of the milk. The giving of milk may produce eczema, bronchial asthma or severe vomiting attacks.

Milk Raw, Pasteurised or Sterilized.

Fresh clean cow's milk, i.e., milk from a healthy tested herd, with a bacterial count not over 10,000 in the summer or 5,000 in the winter per c.c. is of course best.

If this is not procurable pasteurized milk should always be used. Pasteurize so as not to interfere with biologic or chemical properties of the milk, but at sufficient heat to destroy the bulk of bacteria including tubercle bacilli. Temperature at which this is accomplished is 145° F. for 40 minutes.

Sterilized milk is often the only safe milk.

Advantages of Boiling Milk.

Curds do not form in the milk.

The fermentative processes are stopped.

It is the cheapest and safest way of preparing clean milk.

Disadvantages of Boiling Milk.

1. The vitamins are killed.
2. It is more constipating.

The disadvantages are overcome by orange juice, cod liver oil, vegetables and vegetable broth, i.e., give the water soluble A. and fat soluble B. vitamins.

Just a word concerning patent foods before closing. I have purposely avoided them for they play a harmful role in infant feeding. Granted that a certain percentage of infants are apparently unable at times to digest cow's milk, this percentage would dwindle to an almost insignificant one if we would commence with properly constituted milk mixtures, and not switch on to patent foods at the first sign of colic or a few undigested curds in the stool. The type of baby difficult to feed on milk mixtures is the one that has been successively tried out on such foods as Condensed Milk, Horlick's Milk, Mellin's or Allenbury's Food. The following statement is substantially true: 95% of infants requiring artificial feeding can be successfully fed on simple cow's milk dilutions if started with them at first. This has been the experience at all maternity and infants hospitals where such a plan is followed as a routine as soon as artificial feeding becomes necessary.

The following objections to patent food are general:—

1. They are all dead foods and tend to produce Scurvy and Rickets.

2. The fat content is low and to produce gain the carbo-hydrate element is disproportionately high, so that when diluted they do not constitute a well-balanced food, having too high a carbo-hydrate element.

3. The babies fed on these foods may be fat; due in most cases to a water-logging of the tissues. Their water binding power is poor and they loose weight quickly and their resistance to infections is low.

4. If given over an extended period they tend to lower food tolerance and produce a severe gastro-intestinal upset. Practically all cases of gastro-intestinal disturbances in infants admitted to the Hospital for Silk Children give a history of being fed on a patent food.

5. They are the most expensive foods.

A small percentage of cases have a cow's milk anaphylaxis and must be fed on a food prepared artificially. The most useful is St. Charles' Evaporated Milk:—Fat....8 C.H....9; Proteid....7; carolic value 42. Add carbo-hydrate. Some cases with severe intestinal disturbances have to be started on such foods. The toxic proteid element has been destroyed by heat and the fat is more finely divided and is more assimilable.

	Fat.	Carbo-hydrates.	Proteid.
Nestle's	5.5	75	14
Malted Milk	8.7	67.9	16.3
Mellin's	.24	80	11.5 practically starch.
Eskay's	1.16	88.8	16.3
Condensed	9.6	55	8

STOOLS

Careful study of the stools is necessary. Normally they are yellow and pasty in consistency, but when upsets occur certain characteristic changes occur and we have the typical fat indigestion stool or carbo-hydrate fermentation stools, etc. The chief constituent of the infants stool is the secretions from the intestinal canal, as under normal conditions the food is almost completely absorbed. This is especially the case with sugar and proteid, but fat in the form of soaps, neutral fats, fatty acids (up to 4 and 5%) is always found.

Bacteria are always present after the first 20 hours of life. The proper functioning of the intestinal canal is greatly influenced by the type of bacteria which predominates. The organisms present give rise to two very different processes, i.e., fermentation and putrefaction. Fermentation is a physiologic process, but putrefaction should be quite absent in healthy children.

Fat Soap Stools.

With a high fat food, fat constipation often occurs from a disturbance of balance. There is an increase of calcium and magnesium in the stool which unites with the fat to form the soap stool.

THE RELATION OF THE PHYSIOLOGICAL FUNCTION OF THE BILIARY TRACT TO TREATMENT*

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An attempt will be made in this paper to consider some of the answers to the following three questions:—

1. What is the physiological function of the Biliary Tract?
2. What conditions occur which disturb this function?
3. What steps can be taken to relieve the symptoms produced by its disturbances?

What is the Physiological Function of the Biliary Tract?

The Biliary Tract consists of (a) the radicals of the bile ducts scattered throughout the liver, which unite and empty the bile poured into them from the liver into the hepatic ducts; (b) the right and left hepatic ducts join to form the common bile duct, which opens into the second portion of the duodenum, where the orifice is controlled by a sphincter muscle (Oddi); (c) the gall-bladder and cystic duct which opens into the middle of the common bile duct; in certain animals such as the horse and rat, this portion of the biliary tract does not exist. In man just proximal to the sphincter of Oddi in the common duct the main duct of the Pancreas duct opens and pours in its secretion, while in certain animals this duct opens directly into the duodenum.

The main function of the Biliary Tract itself is the carrying of bile from the liver, where it is secreted, to the intestinal tract where its principal action is on the fats, and depends on the fact that solutions of the bile salts have the power of dissolving free fatty acids. After the neutral fats are split up by the pancreatic juice into glycerine and fatty acids, the latter are dissolved by the bile and partly converted into soaps by its alkaline salts.

If the Biliary Tract can perform this function in certain animals without a gall-bladder, the question naturally arises why does this organ exist in man and what part does it play in the function of the Biliary Tract?

F. C. Mann, of the Mayo Clinic, after performing a series of experiments on animals with gall-bladders and animals without gall-bladders, states that his results support two of the theories as to the function of the gall-bladder, namely (1) that the gall-bladder influences the flow of bile into the duodenum,

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and (2) that the gall-bladder adds mucus to the bile, which may be of importance either to the general economy or to the mechanism of bile expulsion or to its chemical action. With reference to the theory that the gall-bladder serves as a reservoir for the storage of bile, he goes on to say: "Probably in no species of animal is the gall-bladder capable of holding more than 5% of the total amount of bile secreted in 24 hours and in most cases it may contain little more than 1%. In man the relative capacity of the gall-bladder to the amount of bile secreted in 24 hours is about 1 to 40 or 50. It is therefore impossible for the gall-bladder to functionate as a true reservoir in the same sense that the urinary bladder does.

Chemical Composition of Bile.

In 1000 parts of Bile	From Gall-bladder	From Com. Bile Duct.
Water	859.2	974.6
Solids	140.8	9.04
Bile Salts	91.4	25.4
Mucin and pigments	29.8	5.15
Cholesterin	2.6	1.5
Inorganic subst's	7.7	7.46

The above chemical analysis of the bile shows that the bile from the gall-bladder contains 16% of solids as compared with only 3% in that from the common bile duct. This difference indicates that the bile remains sufficiently long in the gall-bladder for the re-absorption of some of its fluid portion, while the bile in the common duct is being continuously passed along into the duodenum, thereby keeping the solids at only 3%. From this fact I think it is fair to assume that the great bulk of the bile passes directly down the common duct into the duodenum and that only a small proportion of it is stored in the gall-bladder first.

Mann further states that "the gall-bladder seems mechanically adapted to change the escape of bile into the intestine from a more or less continuous flow into an intermittent one. It has been shown that the gall-bladder undergoes rhythmic contractions which increase during the height of digestion." According to Meltzer, the muscular wall of the gall-bladder and the sphincter at the opening of the common duct into the duodenum appear to be under the same nervous control and obey the "law of contrary innervation, i.e., a stimulus which causes the gall-bladder to contract at the same time produces a relaxation of the sphincter and vice versa. Following the removal of the gall-bladder the sphincter appears to continue its function as a regulator of the flow of bile while the loss of the gall-bladder is compensated for by the dilation of the common duct. This method is the normal one in those animals who have no gall-bladder. There is abundant evidence that such a change does occur in man following the operation of Cholecystectomy, when the bile tract continues to perform its function so satisfactorily that the patient enjoys good health and complains of no symptoms.

Further evidence of this fact is seen in those cases in whom there is no definite history of trouble suggesting disease in the gall-bladder, but in whom the gall-bladder is found full of stones at autopsy, the patient having died from some other condition altogether. The explanation of such cases is that there has been a gradual cessation of the function of the gall-bladder as the result of the chronic inflammatory changes in its walls until it entirely ceases with the obliteration of the cystic duct. During these changes the Biliary Tract continues to perform its normal function of carrying bile to the duodenum, gradually accommodating itself to the lack of a contracting gall-bladder. In other words nature has cut off the gall-bladder from the Biliary Tract by cicatricial contraction of the cystic duct, the resulting effect on the Biliary Tract being identically the same as when a Cholecystectomy is performed.

From the above facts I think it is fair to conclude that the part played by the gall-bladder in the function of the Biliary Tract is an accessory rather than an essential one. This being the case its loss by disease or operation is less likely to disturb the normal physiological function of the Biliary or Intestinal Tracts than if it played a more important part.

The relation of the duct of the Pancreas to the Biliary Tract is referred to by Archibald in an article on "The experimental production of Pancreatitis." He says "I imagine that normal bile must frequently be forced into the pancreas by the action of the sphincter (Oddi) without doing any harm or causing any symptoms. The conditions for actual damage to be done must pretty certainly be three:—

- (1) A change in bile composition, increasing the proportion of bile salts;
- (2) Undue resistance, perhaps amounting to spasm, of the common duct sphincter; and
- (3) Abnormal rise of pressure in the biliary system behind, either in the gall-bladder or in the common duct."

The following conditions of the Biliary Tract are therefore liable to be important factors in the production of acute or chronic pancreatitis:—

- (1) Any change in the function of the gall-bladder such as results from a Cholecystitis, which tends to increase the percentage of bile salts;
- (2) The presence of stones or inspissated mucus in the gall-bladder as the result of its altered function, which may pass down and produce undue resistance or spasm of the common duct sphincter;
- (3) Any change in the function of the gall-bladder interfering with its normal ability to empty itself thereby producing an abnormal rise of pressure in it.

To sum up, the chief function of the Biliary Tract is to carry bile from the liver to the intestine, the major portion passing directly down the hepatic and common ducts.

The gall-bladder stores a small proportion of the total bile, which contains mucus and a high percentage of solids. It contracts most actively at the height

of digestion and forces this concentrated bile into the duodenum at this time. Although this function is doubtless a useful one in the normal individual, it is not essential to the main function of the Biliary Tract.

The relation of the opening of the duct of the pancreas to the ampulla of the common duct subjects this organ to the menace of certain changes which occur in the Biliary Tract.

What Conditions Occur Which May Disturb the Normal Function of the Biliary Tract?

A. The radicals of the biliary ducts in the liver may be affected by inflammatory and chronic changes, but as their treatment is not one of surgical interest they will not be discussed in this paper.

B. The Common Bile Duct.

The function of this part of the Biliary Tract may be interfered with in one of the following ways:—

1. By inflammatory changes in the mucous membrane or wall of the duct, (a) which may result from the duodenum or from a blood infection or, (b) which may result from the mechanical damage caused by a calculus passing down the duct. The degree of pathological change will vary from a congestion of the mucous membrane up to an ulceration of all the coats of the duct. The wall may return to its normal condition or the duct may be permanently narrowed by the cicatricial contraction of a healed area of ulceration.

2. By mechanical obstruction within the lumen of the duct caused by a mass of inspissated mucous or a calculus passing down from the gall-bladder. The degree of obstruction to the passing of bile will vary in accordance with the size of the obstructing body and the amount of spasm produced in the wall of the duct. The intermittent obstruction which often occurs in this type of case would indicate that spasm of the duct has a good deal to do with it. The gall-bladder may or may not be distended in such cases. If the obstruction is distal to the opening of the pancreatic duct inflammatory changes are likely to occur in this organ.

3. By pressure from outside the duct, caused by the cicatricial contraction of adhesions or by the pressure infiltration of malignant disease. The obstruction to the flow of bile through the common duct is of a constant character in contrast with the intermittent one of the former group. It also tends to increase in degree as it progresses. The gall-bladder is commonly dilated and distended in accordance with the law laid down by Cruveiller.

C. The Gall-bladder and Cystic Duct.

The pathological changes in this part of the Biliary Tract may be considered under the following headings:—

1. Acute Inflammation.

Inflammatory changes in the gall-bladder or cholecystitis may vary in degree from a mild hyperæmia and œdema up to an acute gangrenous necrosis of all its coats. The mucous membrane alone may be involved or it may extend through

all its coats and produce a peritonitis in the adjacent viscera. The main function of the Biliary Tract is not disturbed as the bile continues to pass down the common duct into the duodenum. The symptoms produced are the result of the acute localized inflammation and not from any effect it may have on the function of the Biliary Tract. The cystic duct may be obstructed causing the gall-bladder to be distended and enlarged. The probability of the gall-bladder returning to its normal condition after an acute inflammation will vary with the amount of damage to its walls and those of the cystic duct and with the completeness with which it gets rid of the infecting organism. The frequency with which cholecystitis tends to recur indicates how difficult it is for the gall-bladder to free itself from an infection once it has become established.

2. *Chronic Inflammation.*

Chronic inflammatory changes may vary in degree and extent in the same way as acute ones. There is a still smaller tendency for them to affect the function of the biliary tract. The symptoms they produce may be of such a mild character that they continue over a period of years without the patient having any idea that they exist. Any disturbance they do produce is of a reflex character and is usually attributed to the stomach.

One of the common results of chronic cholecystitis is the formation of gall-stones. The tendency for this to occur is not difficult to understand if we recall the fact that the bile in the normal gall-bladder contains 16% of solids on account of its having remained there sufficiently long for the absorption of its fluids. Any swelling of the mucous membrane from a chronic inflammation will obviously tend to increase the difficulty of the gall-bladder emptying itself and thereby increase the percentage of solids. The life-history of laminated gall-stones indicates that during certain periods bile salts are precipitated and deposited on the surface, whereas at other times the bile salts remain in solution and the surface of the stone becomes smooth and glistening. In some cases there is a deposit of cholesterin or calcium alternating with the bile salts. I think one is justified in inferring from this that during the time in which there is no deposit on the stone either the bile enters and leaves the gall-bladder freely or it does not reach it at all; while during the period that bile salts are deposited, the bile gets into the gall-bladder but it cannot get out, the result being the absorption of fluids and the precipitation of the salts.

Gall-stones either may remain in the gall-bladder for a period of months or years and produce no appreciable influence on the flow of bile from the liver to the intestine, or they may pass into the cystic duct at irregular intervals of time, down which they travel in from a few minutes to a day or so, causing an acute attack of biliary colic, but not interrupting the flow of bile unless some obstruction occurs in the common duct as mentioned above. Although the function of the biliary tract is not directly affected, the chronic cholecystitis either with or without stones often sets up a group of reflex digestive symptoms from which a diagnosis can be made.

3. *Malignant Disease.*

Carcinoma of a gall-bladder occurs in a small proportion of cases, in most of which it is associated with gall-stones. It produces no effect on the flow of bile unless it presses upon or infiltrates the common duct. It is therefore not often diagnosed in its early stages unless operation is undertaken on account of symptoms suggesting the presence of gall-stones.

What Steps Can Be Taken to Relieve the Symptoms Produced by a Disturbance of the Function of the Biliary Tract?

A. Affections of the radicals of the bile ducts in the liver are in no way surgical and therefore will not be discussed in this paper.

B. It is essential to good health (1) that bile should have some means of escape from the liver and (2) that bile should reach the intestine to carry on its part in digestion. Therefore if any obstruction occurs in the common bile duct interfering with these conditions, steps should be taken to relieve it.

If the obstructing force is due to inflammatory swelling which may subside in a few days, palliative treatment is all that is necessary.

If the obstruction is due to the mechanical presence of a gall-stone, palliative means are first adopted to see whether the stone will pass on into the duodenum. If the obstruction is temporarily relieved but persists in recurring then operation must be undertaken to remove the stone from the duct.

Should the obstruction be in the ampulla or at the sphincter of Oddi and be causing acute or chronic changes in the pancreas, Archibald claims that after removal of the obstruction, drainage is the most essential part of the treatment and that this should be maintained for from 3 weeks to 3 months depending on the extent and chronicity of the changes in the pancreas. This drainage may be carried out either through the gall-bladder or, if the cystic duct is blocked, or the gall-bladder removed, through the common duct.

If the obstructing force is due to some permanent change in the wall of the common duct, then it becomes necessary to find some other channel whereby the bile can get out of the liver and whereby it can get into the intestine. Such a condition can be met by anastomosing the gall-bladder to the duodenum, small intestine or colon provided the cystic duct is patent or by a plastic operation on the common duct itself in those cases in which the cystic duct lumen is destroyed or the gall-bladder removed.

Gall-bladder and Cystic Duct.

The chief question to be decided in affections of this part of the Biliary Tract is whether the gall-bladder should be removed or not. Several points have been referred to in discussing the physiology of the gall-bladder which assist us in arriving at a proper decision. That good health can be enjoyed in the absence of this organ is evident in the many individuals from whom it has been excised. The fact that no gall-bladder exists in certain animals indicates that it is not an

essential part of the Biliary Tract. As the gall-bladder will only hold from 1/40th to 1/50th of the total bile secreted in 24 hours the part it plays in the function of the Biliary Tract must be a comparatively minor one. As bile normally remains in the gall-bladder sufficiently long for the proportion of solids to be changed from 3% to 16%, any diseased condition which will increase the length of time the bile stays in the gall-bladder will tend to render the proportion of solids still greater, and thereby increase the likelihood of the precipitation of the bile salts. If this diseased condition is due to an infection, then the two conditions requisite for the formation of gall-stones will exist and the probability of their developing will be greatly increased. The continued presence of a gall-bladder under these circumstances is a menace to the health of the individual and therefore its removal is strongly indicated.

In cases of acute inflammation of the gall-bladder, palliative treatment is advisable unless the increasing symptoms and local signs indicate that the inflammatory changes are going on to gangrene or that the gall-bladder is distended with pus, in which cases laparotomy will be necessary for the purpose of providing drainage or possibly excision of the necrotic gall-bladder.

The treatment of cases of chronic cholecystitis has gone through several phases in recent years. For some years the customary operation for such a condition was a cholecystostomy. The Mayo Clinic has reported that the after history in cases in which this operation was performed indicates that a recurrence of their former symptoms occurs within 2 or 3 years, in a considerable proportion of them. This suggests that the gall-bladder does not regain its normal function, and that the persistence is caused by the gall-bladder, which is corroborated by the fact that on its removal at a second operation, the symptoms entirely disappear.

The problem to be decided during a laparotomy for symptoms pointing to chronic gall-bladder disease is "Does the gall-bladder show any indications that it has not been functioning normally?" For example, is it dilated and the wall thinned? Is it small and the wall thickened and contracted? Does it contain gall-stones? Is it adherent to the surrounding structures? If any of these conditions are present, can they be so treated that the gall-bladder will afterwards regain its normal function? It has just been pointed out that drainage has been tried but was not successful. Until some other way can be found which will have this effect, the best means of treating such cases at present consists in the removal of the gall-bladder. The absence of the gall-bladder is less dangerous to the physiological function of the biliary tract than its presence when it cannot functionate normally. A gall-bladder which is not performing its normal function is a menace to the main function of the biliary tract to the pancreas and to the health of the individual and should therefore be removed. An individual is more likely to enjoy good health without a gall-bladder than with one which is not functioning normally.

SUMMARY.

(1) The function of the gall-bladder is an accessory rather than an essential one to the biliary and intestinal tracts.

(2) The normal function of the gall-bladder is interfered with by acute and chronic inflammatory changes or their results.

(3) A gall-bladder which is not functioning normally is a menace to the function of the biliary tract, to the pancreas and to the health of the individual and should, therefore, be removed.

NORTHERN MEDICAL MEN MEET ON BOARD SHIP

To District No. 9 of the Ontario Medical Association belongs the credit of holding a most unique medical meeting.

On Thursday, August the 12th there assembled in North Bay a representative number of the practitioners in Northern Ontario. Arrangements had been made for the party to spend the day cruising on Lake Nipissing and the French River. The morning hours were spent in a get-together manner, luncheon being served on deck by the lady members of the party. The afternoon session which was presided over by Dr. Edgar Brandon of North Bay, Counsellor of the District, proved to be most interesting. In addition to helpful papers given by Dr. George, Dr. Ranney and Dr. Campbell of the local society, the meeting was honored and delighted by a very excellent paper from Dr. Thomas Cullen of Baltimore, on "Uterine Hemorrhages" and by Dr. Ernest Cullen of Detroit, who reported some interesting gynaecological cases.

The Ontario Medical Association was represented by the President, Dr. J. Heurner Mullin of Hamilton, and the Secretary, Dr. T. C. Routley of Toronto, who endeavored to outline the aims and objects of the Association, together with an account of some of the work which was being done in co-ordinating and unifying the medical profession in Ontario.

The evening session developed into a Round Table Conference in which nearly all the practitioners present took part. A great many points of interest came up for discussion, which materially added to the value of the meeting. It was the unanimous opinion of all present that the meeting had been one of practical usefulness. The key-note of enthusiasm was early struck, giving every indication of the northern part of the province becoming solidly united in the very near future, as an integral and active part of the Ontario Medical Association.

To the local committee in North Bay much credit is due for the excellent manner in which the whole day was planned and arranged. Conferences such as this are of untold value to the practitioners participating, and it is earnestly hoped that this is only the beginning of what will become a general and wide-spread policy in all parts of the Province.

THE MANAGEMENT OF A CLINIC FOR SYPHILIS*

E. J. Trow, M.B., Toronto.

The importance of syphilis to the individual, the family life and the community at large needs no particular emphasis, as volumes have been published in the past ten years bearing on all phases of the subject. The various estimates of the number of individuals affected in all stations of civil and military life are available and seem to point to a steady increase in the total of cases that must be cared for. The various departments of health are becoming well organized for the care of these individuals and money has been found and must be found in increasing sums for the intelligent care and cure of syphilitics. It seems to me, the state, by granting money for this work, will, in the end save money if syphilitic clinics through efficient treatment are able to prevent the large numbers of neurosyphilitics which fill the provincial asylums. In the State of Minnesota in 1915, Dr. H. G. Irvine reports the cost of these cases as \$166,000, and this is only one phase of the disease and does not take into account the damage done to the cardio-vascular system, the liver, the kidneys, the eyes, and other organs, the total cost of such damage to the state no one can estimate. From personal observation I believe the sum to be enormous and this leaves out the fact that syphilis probably ranks first among the killing diseases.

The syphilis clinic, therefore, becomes a most important one and in point of usefulness, indispensable, and can no longer be given some dark corner of the hospital. The cases that attend are linked up with every special branch of medicine and the closest co-operation between all clinics and agencies from which our cases are referred, is necessary. It is absolutely essential that beds be set aside for their use, as many cases require special forms of treatment besides those who should have hospital care because of open infectious lesions.

To illustrate the varied source of our cases, in 1919 at the Toronto General Hospital syphilis clinic, there were 329 new cases added to our roll, the source of these being:—

Direct	99
Referred by out-patient clinics	83
" " outside doctors	49
" " wards, medical, surgical and special	53
" " Public Health Department	28
" " social agencies	17

It is interesting to note how many of these cases come direct for some ailment

* Presented at Academy of Medicine, Toronto, April, 1920.

they believed due to blood trouble, thus showing the extreme value of the education of the public.

The relation of syphilis to all branches of medicine is shown in the variety of cases referred to us from all of the working out-patient clinics, as well as a number of active and latent cases from the indoor wards. The increasing number of cases referred for examination by the Board of Health, due to Venereal Disease Prevention Act is very gratifying as it seems we are beginning to get at sources of infection now, and that was impossible before. Lastly, the various social service agencies are being roused to the menace of syphilis and are quick to refer cases for examination.

In the management of such a clinic it is essential that the efforts of the medical staff and social service nurses be thoroughly co-ordinated and in constant communication with all the medical and public health bodies referring their cases. I believe it to be almost a necessity that a syphilis clinic be connected with our larger general hospitals, not only because of the supply of cases, but rather it is only in such hospitals the necessary expert advice on all branches of medicine and surgery is obtainable.

The syphilitic manifestations are so varied that for its mastery a very broad view of medicine is required, so much so that a new specialty is being developed. As to what department of medicine or surgery the syphilis clinic belongs or whether it should work independently does not matter, and are questions for the various schools and hospitals to determine.

The main essential is that the clinic be in charge of a man with the necessary broad training to grasp the problem. Such a chief of clinic in a large hospital and in connection with a medical school should have a trained personnel which needs to include a serologist, a man trained in neurology who will make ophthalmoscopic examinations and one trained in general medical diagnosis. The chief of clinic should be familiar with all phases of syphilis and dermatology and be fairly well versed in neurology, able to appreciate the significance of involvement of the central nervous system, and be able to grasp the importance of hypertension and symptoms caused by cardiovascular syphilis. He should appreciate the immunity process set up by such a general infection, and in addition the action and value of the specific drugs should be acquired by prolonged observation. This type of clinic chief is well equipped to teach the disease to medical students in its broader aspects, and in my opinion this is one of the important duties of the clinic staff.

The clinic should have a well equipped laboratory and a dark field microscope, also a serological laboratory, either connected with the clinic or under a department of its own, the results being carefully controlled by clinical observation, as only the clinician can interpret the results intelligently, as he is well aware that the blood wassermann may be negative in certain types of cerebro-spinal syphilis, in various eye syphilis, and limited specific lesions of the skin and mucous membranes. He would realize too that the blood may be re-infected at

times from foci in the nervous system and the eye. Specimens for a museum should be collected showing pathological changes such as bone syphilis, gummata, aneurysm and other vessel changes. Lantern slides, photographs and drawings should be available for the instruction of students and practitioners. A ward with a few beds for detention of open infection cases and for lumbar puncture as well as for special forms of treatment should be maintained.

The patient on admission should have a general medical examination including a urinalysis, a heart and eye examination, as well as a neurological one. A record of treatment given and progress notes are essential and should be typed. The social case sheet is very important and the source of infection carefully sought for, as well as notes made on family and personal history, hours of work, recreation, etc. I believe a mental examination should be noted on the social case sheet as many of our cases are defective.

In the past year 61 were examined, the result being:—

Diagnosed defective	49
" insane, not G.P.I.	8
" normal	4

These were fairly obvious cases, but it is highly probable that a routine examination would filter out many more who really should have institutional care and are carriers of disease.

The social service nurse is indispensable and is able by constant visiting and encouragement to keep these cases coming for treatment, as I am inclined to think the less compulsion is used the better, and often a quiet talk with a patient, explaining the seriousness and dangers of no treatment, is of more value. Home visits by the social service department give you an intimate idea of their life and very often by slow education, conditions are improved. Plenty of literature bearing on venereal disease generally should be provided, and I can assure you, is eagerly read. A nominal roll of all patients with columns for stage, source, and type of infection, etc., should be kept for statistical purposes.

The development of a research department is important, as we are not yet fully equipped to fight the disease. New drugs and methods are being constantly developed and must be thoroughly tried, yet, it is necessary to be conservative in the interest of the patient and not be led astray by every new preparation advertised by the manufacturing chemists.

The patients should be interviewed each visit, and while a routine treatment should be adhered to, yet at times it is necessary to interrupt that routine. It is quite impossible to give the treatments in a mixed clinic as routinely and as safely done in the army, and I believe that too many cases are being treated in that fashion, no attention being paid to the individuals' general health, very often with disastrous results. The treatments should be given as quietly and as painlessly as possible, and every consideration shown the patient. Lumbar puncture is now a necessity, and should be proceeded with as early as possible in every case. If found positive, suitable treatment, either local or general should be proceeded with.

A constant question by the patients is "Am I still infectious?" and is always hard to answer. I think all will admit that the newer test of cure is efficient treatment followed by a negative wassermann for one year again negative after one injection of salvarsan, and a negative spinal fluid is better than that of waiting four or five years after infection for an attenuation of the virus. We have seen repeatedly congenital syphilis in the offspring eight and ten years after infection.

The greatest hope in the elimination of syphilis is dependent largely on the better education of the medical profession as to the necessity of early accurate diagnosis and treatment, and the general seriousness of the disease. The medical officers of the army were thoroughly trained as to its dangers, and realize the importance for instance, of a dark field examination of a genital sore for spirochaetes, in contrast to some of our practitioners who calmly wait the appearance of the rash or rely on a clinical diagnosis based on the text book descriptions.

These cases, for the most part, are anxious to be cured, are grateful, and in the majority of instances are impressed with the seriousness of the disease, and are quite willing to co-operate.

THE FORTY-FIRST ANNUAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION

The Ontario Medical Association, upon receiving an invitation from the Niagara District Medical Association, has decided to hold its Forty-First Annual Meeting at the Clifton House, Niagara Falls, during the dates of May 31st, June 1st, 2nd and 3rd, 1921. Arrangements have been made with the hotel management for excellent accommodation. Strong and representative committees, appointed by the Niagara District Association, have already commenced their preparations, and from all indications no effort will be spared in arranging a most successful annual convention.

REVIEW OF THE FORCES.

**Presidential Address, Ontario Medical Association,
Toronto, May, 1920.**

F. W. MARLOW, F.R.C.S., F.A.C.S.

The fortieth annual meeting of the Ontario Medical Association is now in progress. Time is moving on and with its passing the Association is gradually being moulded into an organization truly representative of the medical men and women of Ontario.

To the pioneers of forty years ago, and there are but few of them remaining with us, let the credit be given for their commendable spirit and ambition in launching forth the effort to get the members of the profession together in annual convention so that they might have opportunities of keeping in touch with and discussing for their mutual interest and enlightenment, the various advances in medical science. Their conception of the value of attracting men together to propound, to listen and to discuss is, the spirit which has prevailed throughout the forty years and which still exists. Their motives could not be classed as selfish as their whole theme was how to best fit themselves to combat disease. Be it said to the credit of those who have carried on meantime, that the same theme has permeated their endeavors, and so it is that to-day we meet again to check up and to sort over our armamentaria so that the serviceable may be burnished up for further use, the obsolete discarded, and the whole replenished with up-to-date equipment.

To-day there are but few counties remaining in the Province of Ontario in which an organized Medical society does not exist. County and district societies have their regular meetings during the course of each year and in many, though unfortunately not in all parts of the province a great deal of enthusiasm is evidenced by the members.

Closer relation of the local societies with the Ontario Medical Association, by affiliation, is tending to promote a still greater interest, not only in district and local affairs but in provincial as well. The present plan of organization with its ten counsellor districts and its ten counsellors constituting part of the Executive, renders it more easily possible for the Association to keep in touch with

the status, demands and activities of the local societies.

Doctors of Medicine appear to recognize more fully the value of co-operation and it is most gratifying to find that the old idea of opposition in practice is being replaced by the spirit which regards the other doctor as a colleague.

The spirit of service still prevails and has been strengthened by the splendid work done and the great sacrifices made by so many medical men of Canada during the great war, and it is in this same spirit of service that the hope of the future of the medical profession lies.

Successful co-operation demands the spirit of service, and those involved must realize the necessity of taking their proper part. They must trust their fellows and prove themselves worthy to be trusted. They must keep their equipment serviceable and add to their knowledge by the constant reconstruction of experience, whether personal or transmitted.

The one who does not enjoy meeting with his fellow-practitioners in local, provincial or other medical societies is difficult to understand, and the man who thinks he gets nothing out of so doing is a problem—a subject for research. The doctor who thinks himself too busy to get away for a few days to take part in a meeting, if only by his presence, or who is satisfied with his fund of working knowledge, is likely soon to become a pronounced case of chronic fossilization.

Fossilization of ideas and cerebral block in so far as the practice of medicine is concerned is not in the interest of the public good and tends to destroy or to lessen confidence and to create loopholes through which irregulars may osmose and afterwards thrive.

The question might well be asked as to whether we are doing all that we should to secure and to maintain the standard of efficiency expected and demanded by the public.

To the matter of undergraduate medical education reference will be made later, but here one

ventures to state that possibly there is something wrong with the system by which a man is graduated and licensed to practice medicine without further checking up until death relieves him of his various duties.

It is true that in Ontario he has to renew his license from year to year, and provided that he commits no serious misdemeanour and continues to contribute to the funds of the council the sum of two dollars a year he is considered to be getting on well and to be a fit person to continue his important duties in relation to the public whom he may serve.

Experience is a good teacher, but always provided that its interpretation is carefully sought and a logical idea determined. Most men have their efficiency strengthened by experience, but unfortunately there are a few who have not, and because of their failure to think, to investigate, to check up and to confer.

In the permanent army a system has prevailed by which medical officers have been required to pass examinations on medical subjects at various stages prior to promotion, and it has been suggested from some quarters that a system of after-graduation examination should be inaugurated in respect to civil practice.

Such a system would be laborious, unsatisfactory and in many instances unjust, but with some legislation a system for checking up, and which would be simple, fair and effective might be inaugurated.

The principles involved might be the Golden Rule of doing unto others as you would have them do unto you and British Justice which provides that a man be judged by his peers.

It might reasonably be expected that every medical practitioner in the Province of Ontario should be eligible for membership in his local or county medical society, and it might even be suggested that membership in such society should be demanded provided that geographical conditions are not impossible.

Each local or county society might constitute an investigating committee to enquire into, and if deemed advisable to report upon the then recognized professional standing and methods of practice of men within the precincts of their society, and particularly upon the few whose actions might be deemed unethical or who through carelessness, staleness, greed or failure to recognize their limitations have fallen below the average standard of efficiency or have actually become a menace to the public.

An incompetent or unethical practitioner constitutes a source of reflection upon the doctors in his vicinity and likewise upon the whole medical pro-

fession, and it should not be incumbent upon any group of medical men to condone the actions of a fellow-practitioner who goes wrong and makes no special attempt to get right or who is so selfish as to disregard the rights of his fellows and of the public.

If such there be he should be made the object of an investigation by the local society which body, if it seems desirable, should pass the information on to the council or licensing body either directly or through a special committee of the Ontario Medical Association. The Council should by legislation have its powers extended so as to deal with such cases in a satisfactory way either by expulsion, suspension, or by ordering further specific courses of study.

During the past few years some advances have been made in an attempt to stimulate more interest in the local and district societies by making it easier for such to secure lectures on various selected subjects.

The Committee on Medical Education, after much commendable work, have recently made it possible for the secretary of the association to send out to all the local societies a list for post graduate extension work. This list is a compilation of various subjects on which men who are specially qualified to discuss them have expressed their willingness to go out to meet with the local societies and present to them lectures or addresses on subjects of their choice. Arrangements have been made whereby any society having a man who has devoted enough time to a subject as to make it worthy of presentation outside of his own society may recommend the addition of his name and subject to the list.

University co-operation in this connection has been acquired and the committee in charge of post-graduate extension work at Toronto University have kindly supplied the Association with a valuable list of subjects in which they will undertake to provide suitable lecturers. The Western and Queen's University have also supplied a list of subjects and have attached the names of the lecturers. The Academy of Medicine, Toronto, and the Hamilton Medical Society have also supplied similar lists. It is expected that before long the whole list will be revised with additions and eliminations. In this regard it is considered that unless there are some valid objections, the valuable list supplied from Toronto University would be still more valuable if the names of the lecturers were attached. Opinions expressed by members of local county societies are decidedly in favour of the attachment of the names in order that selection may be facilitated, for although the choice of lecturer might safely be left in the hands of the University

Committee, the local men will insist on knowing that he is one who will present the subject in a practical way. To select a subject and have to communicate with the Committee to get the name of the lecturer is a somewhat cumbersome procedure and one which might lead to embarrassment.

It is hoped that local societies will derive great benefit from the use of this list and that they will feel free to use it to the fullest extent and to make suggestions for its improvement, as it is desired to bring to them practical up-to-date information which they may not have an opportunity of seeking away from home.

The educative factor of this post-graduate extension work is so pronounced that when in a slightly further stage of development it is hoped that it will merit the sympathy and support of the provincial government to a degree sufficient to establish it on a broad and comprehensive basis.

Following a recent interview on the subject of post-graduate extension work along the lines suggested, the Government of Ontario expressed itself as very much interested in the scheme and intimated that some possible participation in it might be considered at a later date.

The formal affiliation of most district and county medical societies with the Ontario Medical Association will soon be accomplished and it is essential that the Association should take care to manifest some interest in its affiliated bodies and also to demonstrate that such affiliation is of use and interest to them. So, too, it is essential that the local societies should manifest a greater interest in the association by courteous treatment of the latter in responding to communications promptly, by holding regular meetings and keeping the association informed as to their activities by attempting to enroll all the practitioners within their precincts and by the careful selection of officers to conduct their internal affairs and judicious appointment of delegates to the general purposes committee of the Association. Co-operation is the chief essential to success and the spirit of cohesion must prevail.

For the Association to take its proper place in this scheme of affiliation and co-operation it is necessary that business-like methods should be adopted. A central office, located in Toronto, is the first great need and the second is adequate secretarial assistance. It might be taken as read that funds are required and at present these are inadequate if the work of the Association is to be enlarged and carried on satisfactorily.

Membership, which is now continuous, includes the names of nearly thirteen hundred practitioners throughout the province and it is hoped that in due time two thousand more will be added. Increased

membership means increased funds, sufficient to meet the demands. In the meantime it seems necessary to effect an increase of funds by special means and in order to bridge over a gap of a few years and acting in accordance with the wishes of the general membership of the association at its last annual meeting the Executive have instituted a campaign towards the establishment of a guarantee fund covering a period of three years. To this end members are being solicited to subscribe the sum of ten dollars per year for that period, and it is hoped that a great many will avail themselves of the opportunity of contributing in this way to the establishment of an effective and permanent organization.

The subject of a journal for the association has been under discussion and what appears to be a very favorable offer in this regard has been received from the Macmillan Publishing Company. The offer, which does not place any financial obligation upon the association, has been accepted to-day by the members, and it is hoped that the establishment of this means of communication amongst them will do much to further the organization and to consolidate the affiliation of the Association with the local societies. Further it may reasonably be anticipated that the value of medical literature in Ontario will be considerably enhanced.

During the year the Association has suffered the loss of many of its friends. Less than a year ago it was rumored that Sir William Osler would likely be here about the time of our next meeting, and it was hoped that he might be induced to favor his many friends in the medical profession of Ontario by being present with us. Alas, time's relentless incident called death has left us sorrow and disappointment, but we cherish a happy memory of the great physician whom we revered and loved.

An annual meeting without the presence of Sir James Grant is so unusual that his enthusiastic spirit which entered into many a discussion will be greatly missed. Sir James went to his rest after a notable and inspiring career.

Dr. Herbert J. Hamilton fell in the thick of battle. Influenza held the field in its relentless grasp and the doctor fought and carried on against this terrible enemy without fear or hope of gain but only for the common good. Not until all his defences were battered down, did he give up the struggle, and when he did it was to lie down and to welcome death with a sense of duty well done.

Few men are endowed with the quality of intellect and poise so necessary in the successful management of persons whose mental deviations are such as to bring them under special observation and care. Dr. J. C. Mitchell, who recently died at Brockville,

was a man who after long years of general practice was capable of adapting himself to the intricate needs of such a position and the public service sustained a great loss when, actively carrying on against known and serious physical odds, he was called to rest. Those who received encouragement, comfort and sympathy from his ministrations are numberless.

To have lived beyond three score years and ten and to have spent half that life in an effort to alleviate the ills of mankind by presiding over the advancement of hospitalization is a record that will stand for centuries to the loving memory of Dr. Charles O'Reilly.

These are but a few of our friends who have been relieved of duty and who with the many others have gone on to their rest and reward after lives filled with duty well done. Let their memory be an inspiration to all whose duty it is still to carry on.

While deploring our losses we may yet take encouragement from our gains. The war is well over and we have witnessed the return of many of our members from military to civil duty, and our ranks are strengthened. Intelligence and devices tested and proved worthy during the war are being applied in practice.

During no previous year has there been witnessed such an impetus towards the conservation of health, and public combat against disease. Sentimental barriers have been broken down and there is a notable willingness on the part of the people to delete opposition to advances in public health and to get in line for the fight against disease.

War against venereal diseases has been declared and it is realized that in order to make the fight effective, knowledge of these diseases must be disseminated far and wide and in an understandable way. Never before the immediate past has such a practical change of sentiment been observed as that demonstrated by the women of Ontario who recently appeared before large mixed audiences and discussed venereal diseases with the object of furthering the educational campaign against them.

Perhaps it is in respect to this subject that the greatest amount of co-operation has been manifested as between legislative bodies and individual workers, and just as it was found how greatly the efficiency of the armies in the Great War was reduced by venereal diseases, so too has the inefficiency and economic waste resulting in civil life from these diseases been recognized. It is indeed most gratifying to find that the Federal Government is assisting the Provincial Government and that the latter have set about to inaugurate facilities for early diagnosis and treatment with some degree of compulsion. The menace to the

state from venereal diseases is so real and of such magnitude that the state can well afford to contribute even large sums of the people's money to combat an enemy so widespread, so insidious in its activities and so deadly in its results.

Almost a year ago a Federal Department of Health was established and a little later there was appointed to the department as Deputy Minister, Dr. John Amyot, of Toronto, formerly professor of hygiene at Toronto University, and whose distinguished service overseas in respect to the conservation of the health of the armies was well recognized.

It might be said without fear of contradiction that this is the most notable example in the knowledge of the medical profession of Ontario in which a man has been chosen by the Government at Ottawa to fill an important position mainly because he was the most capable man that could be found.

Some idea of the work that is being assumed by this department may be gained from a letter received from the Deputy Minister in reply to one from the writer.

This indicates a broad and comprehensive organization with specialization in many branches by the establishment of many important divisions. Through the Quarantine Division it is hoped to protect the country against the entrance of the graver infectious diseases. The physically, mentally and socially undesirable are excluded through the Immigration Division. The sick and distressed and shipwrecked mariners are looked after by the Division of Marine Services, and the health conditions of workers on all government and near government public works through the Preservation of Health on Public Works Division.

There is a Leprosy Division for treating and segregating all leprosy cases.

The Food and Drugs Division protects the food and drugs for man and animals; the Opium and Drug Division controls the export, import and sale of all habit-forming drugs, while through the Patent or Proprietary Medicines Division they are protecting the public against the frauds of advertisers and money-seekers trying to put out dangerous foods and drugs of composition unknown to the public.

The International Joint Commission is protecting the public by preventing the pollution of waterways. Health statistics and information are being gathered and information published on all subjects relating to health through the Division of Statistics, Publication and Propaganda.

Information and ideas of standardization of methods and efforts along health and social welfare lines are being diffused through the Dominion

Council of Health, which is composed of the chief executive health officers of all the provinces and representatives of the agricultural and the labouring part of the population, of scientific public health activities and of the educational and women's interests, the Deputy Minister being chairman of the council.

They are co-operating with the provinces in the cure of venereal diseases to thus eliminate the foci of infection, by the establishment of free standard clinics for the treatment of all venereal disease inmates of places of detention, and in propaganda, and in the enforcement of laws suppressing moral vice and following and encouraging legislation in this connection going through the legislatures.

Through the branch of Child Welfare they hope to be able to help mothers pre-natally, and post-natally to take care of their infants; to improve conditions of living, housing, feeding and clothing; to protect against vice; to properly educate, morally and intelligently; to improve labour conditions that mothers may be able to look after their infants; to facilitate recreation of a proper kind for mothers and their children, and to give financial and medical help to mothers bringing up their children, against exploitation in labour and vice, and to protect them in institutions and in the courts from the ill-effects of ill-humoured, ignorant, vicious and fanatical people.

Through the Housing Branch and the Dominion Grant they are co-operating with the provinces in an endeavor to have constructed suitable houses and particularly for habitation by the labouring part of the population.

An amount has been placed in the estimates this year for the establishment of a Dominion Medical Research Laboratory which will tend to complete the cycle and lend valuable assistance to other branches in making the Department of Health a distinct factor in general Dominion affairs.

Dr. Amyot solicits the help, encouragement and support from outside bodies, such as the Ontario Medical Association, and states that any advice or suggestion which our association can offer will be cheerfully and gratefully received.

Beyond peradventure one of the most important divisions established in the Department of Health is that of Child Welfare. During the past few years much valuable work has been performed with the object of reducing infant mortality, and it is understood that Dr. Helen McMurchy, of Toronto, who has done so much to call attention to the deplorable and unnecessary losses of life during infancy and early childhood, has been appointed to take charge of this division.

Dr. McMurchy states in a letter, that whereas our loss in battle during the great war was 60,000 men, we lost during the same period about 70,000 Canadian children under one year of age. Surely this terrific personal and economic loss constitutes a sufficient reason for our governments to spend all the public money necessary to establish an organization competent to inaugurate and prosecute such a campaign as will eliminate such terrible waste by reducing infant mortality to an irreducible minimum.

Think of it! Seventy thousand Canadian children died while under one year of age during a period of a little more than four years and from causes largely preventable. Surely this constitutes a most serious reflection upon our state of national health, and every commendable effort put forth by individuals, constituted and governing bodies, tending towards the correction of this deplorable state should command the sympathy and support of all our people.

There has recently been established a Canadian National Council for Combating Venereal Diseases with the support of the Federal Government, and in each province an executive branch of this council has been constituted to cooperate and to form a medium of further co-operation on the part of local branches which are to be organized in a very general way throughout Canada. The membership of this body will be largely constituted of men and women anxious to learn about venereal disease and to lend a helping hand in the fight against it. Its work will be largely along educational lines and its endeavor will be to co-operate with all judicial organizations engaged.

There is a Canadian National Council for Mental Hygiene and sporadic advances in psychiatry in its relations to public health have been made. Lack of more definite progress is no doubt due to lack of co-operation on the part of those interested and lack of co-ordination of the forces at work. Those most actively engaged in the work and who are carrying on the propaganda in its favour are in a measure self-selected, remunerated in part from a voluntary fund and without definite responsibility to the Federal Department of Health or to the Provincial Boards. While much creditable work has been performed there have been reported some ill-judged public utterances, which if voiced would appear to be but emanations of their hyper-enthusiasm.

The only proper solution of the psychiatric problem is to place the whole matter in the hands of properly constituted authorities for the evolvement of a comprehensive plan of dealing with it in its entirety. Like all other matters of public health

it should be directed into the proper channels which are those through which legislation permeates. The Federal Department of Health and the Provincial Boards should assume this great responsibility without delay.

In the city of Toronto there is still no visible sign of the much discussed reception hospital for the observation and treatment of those threatened with mental aberrations and who if properly cared for might be reclaimed as useful citizens instead of drifting over the border to become a source of grief to relatives, and economic loss and expense to the state. Surely the Province of Ontario and the city of Toronto should get together on this matter and make haste. It is by no means as important where the hospital is located as to get it built and carrying on, but a site removed from the busy and noisy centres would seem best adapted for its work.

In our own Province of Ontario the year has been marked by many advances and innovations. It has witnessed the downfall of the government which apparently for political reasons dared not to bring down the "Medical Bill" based upon the splendid report of the Commission appointed by them. No doubt had they sensed their fall from power they would have passed the bill to add to the monumental legislation left to recall them to memory.

The Provincial Board of Health has been transferred from the Department of the Provincial Secretary to that of Labour, and a letter from Dr. J. W. S. McCullough, chief officer of health, sets out some of the most important recent features of their work. They are as follows:—

- (1) License granted to the Provincial Board of Health to produce arsphenamine.
- (2) Grant to Ontario from Dominion Government of \$57,473 towards control of Venereal Diseases, which is being supplemented by an equal amount from the Ontario Government, making an appropriation of \$115,000.
- (3) Formulation of a plan to establish Venereal Clinics in accordance with a standardized plan prepared and adopted by the Board.
- (4) Addition of two public health laboratories, making a total of six in the province.
- (5) Appointment of one additional District Officer of Health, making eight in all; and of three sanitary inspectors, or five in all.
- (6) Appropriation of \$40,000 for a Maternal and Child Welfare Division under the Provincial Board of Health.
- (7) Establishment of a Division of Industrial Hygiene.
- (8) Additional appropriation for public health work in Ontario of about \$300,000.

It will be seen from these details that the life of the Board has been full of vigour and that extension of its usefulness and its efficiency has been its chief aim. Extension of its laboratory system throughout the province cannot fail to produce good results, and its active interest in child welfare, industrial hygiene and the fight against venereal disease is worthy of our strongest commendation.

The establishment of a Division of Industrial Hygiene will no doubt tend to bring this important work under proper medical supervision. The department of hygiene at Toronto University under Professor FitzGerald has taken up this subject, and during the past session a series of lectures on it has been given. The writer is unfortunately uninformed as to what extent this important subject is receiving attention in other Ontario universities.

Scientific laboratory work in respect to public health can count much valuable work accomplished, and special mention is due to the work of the research division of the Connaught Antitoxin Laboratories where highly important research work in preventive medicine is being pursued.

During the two very serious epidemics that have marked the year's progress our laboratories have proven a most useful adjunct. The fight against smallpox was greatly aided and the value of vaccination was again amply demonstrated. While no specific prophylactic agent against influenza has been produced the demands for such vaccines as were given trial while influenza held the field, were well met.

The subject of medical inspection of school children is one which has received much attention of late, and considering the enormous value of such work if made general, systematic and thorough, it would seem desirable in order to organize and facilitate the work and produce the best results, another division should be established by the Provincial Board of Health and known as the Division of Medical Inspection of School Children, and be presided over by a medical man well qualified for such an important position.

Public health nursing has become a very important factor in the advancement of the general plans for combating disease, and in this connection it is most gratifying to note that an important adjunct body has come forward with a willingness to co-operate with the Provincial Board, and particularly to inaugurate plans whereby an adequate supply of well trained public health nurses for the Province of Ontario may be provided. The Ontario Division of the Red Cross, under the splendid chairmanship of Mrs. H. P. Plumptre, of Toronto, has taken up with the University of Toronto the matter of establishing a course in public health nursing, the cost

of this course and the provision of ten scholarships to be borne for an initial period of three years by this division. Though it is not yet known whether this plan has been consummated it is expected that it will at least form the basis of an arrangement.

This division of the Red Cross is also working on a plan for providing depots at various centres throughout the province where supplies may be held in readiness for epidemics or other catastrophies.

The spirit manifested in the work performed by the Canadian Red Cross Society overseas, if applied to the solution of health problems throughout our province will undoubtedly constitute a powerful aid.

Credit is due to the Victorian Order of Nurses for the valuable work performed throughout the year and especially during the stress of epidemic diseases.

The St. John's Ambulance, under the local direction of Dr. Copp, has added much to the strength of the forces combating disease by giving instruction to large numbers of candidates in the subjects of first aid, home hygiene and home nursing.

In Toronto, the Federation for Community Service, with its numerous branches, is accomplishing much in the way of relief work under all sorts of social conditions and so is contributing much to the general scheme of establishing and maintaining better health standards.

The Workmen's Compensation Act has been subjected to some changes whereby the proportionate remuneration to the injured undergoes a substantial increase and his medical attendance ceases to be a limited one. Medical fees under this Act are still very inadequate.

This phase of State Medicine has been a great boon to those who come under its provisions, because, to know that while unable to work there is still a livelihood provided for him and his family and that the doctor's fee will not become a personal obligation, is to be relieved of a burden which might otherwise retard recovery or render it incomplete and maintain for a long period a psychic drive under which subsequent breakdown might readily occur.

Elaboration and extension of certain other phases of state medicine are matters for development in the near future. Allowances to widowed mothers where necessary will do much to relieve suffering thrust upon mothers and their children by the untimely loss of husbands or fathers.

When sickness comes the wealthy, or moderately so, are able to provide for themselves adequate and satisfactory medical service, and when the poor become ill they are able to find such service in the public wards of the hospitals, where gratuitous service is amply given by the doctors appointed to the hospital staffs. But for those who in respect to

wealth, constitute the large middle class, the problem is a very difficult one. These, if hospital treatment is required, do not want to go to the public wards and accept gratuitous service, but to enter as private patients, or even semi-private, and become chargeable with hospital maintenance and all extras besides special nursing and medical or surgical attendance, is cause for a financial blow from which many do not easily recover.

Assuredly some readjustment of present plans is necessary. It may be that some limited form of state medicine will soon be evolved whereby medical men will be relieved of the load which they have willingly carried for so many years, of providing gratuitous service for the public ward patients in hospitals, and whereby individuals with incomes less than certain fixed amounts, according to various conditions of living, will be afforded adequate medical service at standardized hospital rates and fees for nursing and medical attention which will be, at least in part, an obligation of the state to be provided for through general taxation.

Within easy memory there was a time when it required some persuasion to get a patient to go to hospital for treatment. Now because all prejudice against hospitals has disappeared and their suitability is generally recognized, and because of domestic and other appertaining conditions it is taken for granted that as far as possible all major and many minor surgical cases should be treated in hospitals; also that many medical cases should be likewise managed.

Throughout the province many hospitals have been established in recent years and largely through the philanthropic spirit of benefactors and local citizens. In many instances municipal assistance has been withheld until the hospital has proved itself indispensable to the community. More recently a commendable policy of hospital support has been manifested by the Provincial Government and it appears likely that such support will be extended in the immediate future.

In the larger centres of population the hospital problem is much more difficult than in the smaller ones. In Toronto, the centre with which one is most familiar, the hospital situation is very serious in respect to availability of accommodation and particularly for other than public ward patients.

During the past two or three years the struggle for hospital beds has been extreme. The population has steadily increased with no increase in the number of beds. The domestic situation has become so difficult that patients have to be kept in hospital for longer periods of time than should be necessary, and there is a great lack of suitable convalescent homes to which they might be transferred

and where they could be looked after more advantageously and economically than in active treatment hospitals.

Extension of hospital accommodation must devolve to a much greater degree upon municipal authorities and those of the state.

Where could a body of men be found to-day, and under present financial conditions, to constitute themselves into a hospital board and build a public hospital on voluntary subscriptions, with some municipal aid, or even to build and to carry on a private hospital? And where could voluntary subscriptions be secured these days when the burden from taxation and the cost of living has become so grave?

The problem is indeed no longer one for solution by small groups of philanthropic men or women. It is for the municipalities with more adequate governmental assistance to see to it that the situation is immediately and consistently met.

The city of Toronto could very well afford to organize a chain of hospitals supplying the needs of the centre, the north, the east, and the west, with central control vested in its department of health, and in the general interest of the people should provide suitable accommodation for paying patients as well as for those who are a charge upon the state. It is illogical to provide only for the latter when so much expense in connection with their care has to be provided for by general taxation. Besides it is a great reflection on such a city as Toronto to find that during most months of the year its hospitals are so filled that many who become ill have to be refused admission and are obliged to take treatment under conditions much less favourable than should be imposed or endured.

The situation could no doubt best be met by carrying on hospitals which combine accommodation and facilities for both classes of patients. It might be suggested that rooms for private patients should be standardized so that with few exceptions, if any, they would command equal and moderate rates.

A suitably located convalescent home should form part of such a scheme as tending towards economical efficiency and permitting early evacuation of patients from the active treatment hospitals and convalescence to be prolonged until satisfactorily concluded.

Nursing at the present time presents many varied problems. The necessity of so much private nursing in hospitals has imposed, and sometimes unfairly, a great additional burden upon the sick. It would almost seem fair to suggest to some hospitals that they should have two rates of maintenance, one with, and the other without nursing. At

present the higher the rate of the ward the more is a patient expected to employ special nurses, while it might seem reasonable that when nursing is not provided the rate of maintenance should be less.

During the war a great many nurses went overseas and a large proportion of these have been, and many through marriage, lost to the ranks. Many have taken on institutional duties or have joined with the public health forces. The number of those available for duty seems to have decreased while the calls to duty have increased.

Some training schools appear to be finding it difficult to secure an adequate number of candidates and at present attempts are being made to interest more young women in the nursing profession. But a short time since, with the celebration of the centennial of Florence Nightingale, an active campaign in this regard was begun.

The idea of service must be inculcated into the minds of those who would enter the nursing profession, while at the same time they must be allowed to feel that while results of service will largely constitute their reward they will attain such financial remuneration as will permit them to live as their calling demands and to provide against the possibility of matured age overtaking them in a self-supporting state.

Further, it is essential that they should be assured that a high standard in their calling will be maintained.

The Canadian National Association of Trained Nurses and the Canadian Association of Nursing Education, with their provincial branches, are doing splendid work in the interests of nursing, and their efforts to place the education and training of nurses on a well-chosen standardized plane have been worthy of great praise.

It is understood that at present the Graduate Nurses Association of Ontario have submitted such recommendations to the Government of the Province as, if approved by that body, will make effective the Act already on the statute books providing for the registration of nurses. The medical profession beyond question, hopes that this desired end will soon be accomplished.

While the need for professional nurses is great, and particularly as the public health services are demanding so many, there is also a great need which is not filled to-day by the nursing profession, and that is for women sufficiently trained in nursing and domestic science, through the medium of short courses, to go into homes where the services of professional nurses are not demanded, and minister to the needs of the sick, and if necessary supervise the running of the home meantime. Such a service as this, if duly recognized and under supervision of

the central governing body, would undoubtedly attract many capable young women into its ranks and would be of the utmost value as a force in regard to public health and in the alleviation of suffering and disease.

It may not be amiss to venture the hope that in the immediate future some scheme will be evolved for inaugurating such a course as will provide an effective force of such workers.

If it comes to pass, as it certainly should, that every young man in Canada will be obliged to undergo a short period of physical and military training, so also should every young woman be required to take some prescribed course of training as a nurse.

Medical education in Ontario is, generally speaking, being maintained at a high standard. During the period of the war its progress was to some extent interrupted, or at least subjected to vacillations.

Within the past year important changes have been made at the Provincial University, and particularly in the department of medicine in the appointment of a full-time professor and the reorganization of the whole department under his supervision, not only in the university but in the Toronto General Hospital as well. It is as yet too early to judge the results of this plan and its pursuit will be watched with intense interest.

It has been strongly suggested that a similar plan should be followed in the reorganization of the department of surgery and in that of obstetrics and gynaecology, but many are inclined to think that there is not the same need for a full-time professor in these departments and that reorganization with elaboration of the system in vogue before the war would be productive of satisfactory results. No doubt further developments will depend largely upon the acquisition of greater financial resources through increased governmental support and contributions likely to be received through the generosity of the Rockefeller Foundation, which body have recently set aside a substantial sum of money for the furtherance of medical education in Canada.

For some time it has been felt that clinical work has suffered somewhat on account of the large amount of attention demanded by laboratory work, but it is gratifying to note that at present there is a greater tendency to get back to clinical research and to make the laboratory its chief adjunct, thus encouraging students to use all the senses with which they are endowed and to supplement and corroborate with laboratory methods.

The wisdom of increasing the course of undergraduate study to six years duration is open to question. The medical student is hammered from

all sides by specialists in various departments, all of whom are greatly impressed with the importance of their own subjects, and he is expected before graduation to satisfy all the specialists that he has a good working knowledge in all the subjects. Before the end the average man is likely to become stuffed, while some may manifest a degree of staleness, and upon graduation they welcome the relief from imposed study, and too many are loth to pursue it further, but are rather inclined to draw upon their fund of knowledge for practical purposes without taking the necessary precautions to add to it or even to keep it replenished.

Might not better results be produced by raising the educational standard for admission to the course in medicine, by maintaining its duration at five years, and by providing greater facilities for post-graduate work and a further follow-up system?

It would seem better that our universities should graduate men after five years' training with a good post-graduate system than after six years' training and continue the indifference towards graduates which has been so noticeable in the past. To carry on a six years' course and establish a satisfactory extension system at the same time is likely to prove a difficult proposition.

Promotion of medical education is but a small branch of the work in any university, and yet there is none more important. The welfare and strength of a nation is largely dependent upon its health, as is the case of the army in the field. Good generalship is needed in order that the wheels of administration may turn true (that is without wobbling) and that those responsible for the execution of tactical schemes for gaining objectives may have confidence and the desire to press on towards the issue.

An experienced organizer, a tried and successful administrator, an inspiring leader of men, firm against coterie advice and making meritorious decisions, learned but not too academic; these are the qualifications of the man but recently chosen as principal of one of Canada's greatest educational institutions, and McGill University is to be congratulated on Sir Arthur Currie's acceptance of this appointment.

The times are hard. The high cost of living is unprecedented in the history of the present generation. The world refuses to work, at least beyond a scant degree, and for the minimum work demands maximum pay. Parasitic life as adopted by the human has developed inordinate proportions.

What an extraordinary person the doctor would seem if he refused to work more than eight hours a day and not at all between 5 p.m. and 8 a.m.

Sympathy is due to so many of our fellow-men who through restrictions imposed upon themselves have almost ceased to know the joy of work accomplished. Without such joy there is discontent, and while so restricting themselves, some whose self-selected mission is to remove the pitfalls from the paths of the idle, have imposed so many other restrictions that the non-working man is somewhat at a loss to know how to spend seven or eight recreation hours out of each twenty-four, and especially that long period from Saturday noon till Monday morning.

As an instance, "Thou shalt not toboggan slide on Sunday" is one of the restrictions that during the long winter months deprive our young people of a most healthful recreation and a much needed one during that period.

"Thou shalt not's" have become so numerous that there is a manifest tendency to think that the world has a bad attack of the "blues," and to say, "Well, what's the use?"

Who of us when in our youth had unrestricted access to bread and butter, meat and potatoes, milk, sugar and apples, could have imagined the lamentable conditions imposed upon so many of our children to-day? How they thrive is a problem, and unfortunately many of them do not thrive. Profiteering on the one hand and organized waste of daylight and opportunity on the other can hardly be counted upon to bring the much needed relief.

The resources of Canada are beyond comprehension, and as the war becomes more removed there is less reason why they should not be developed and conserved for the benefit of our people.

That the northern half of the North American continent is presided over by a government that has not only outlived its usefulness, but seems moribund while the oppression of its people becomes more severe, is deplorable and antagonistic to responsible government. Where would England stand to-day had not a mandate been obtained from the people immediately following the war by that always-on-the-job statesman, Lloyd George?

Our great need to-day is a government with a fresh mandate from our people with a leader vigorous enough to stay on the job with his ear to the ground for eleven months out of each twelve, and such legislation as will curb the profiteer, allow only reasonable profits, especially on all articles of food and clothing, promote and encourage production and conserve the necessary supply for our people and secure for them access to the supply at reasonable prices.

Further, it is essential that something must be done to stimulate work and to relieve discontent. Let the "Thou shalt not's" mark time and let the gospel of work be preached from the housetops, the highways and wherever it may chance to fall on unstopped ears.

To justify the gospel of work let it be remembered that although most of the ten commandments are essentially restrictive and these features have been the subject of exhortations for centuries, it appears to have been overlooked that in one there is a direct order that is applicable to the situation to-day.

It is this: "Six days shalt thou labour, and do all that thou hast to do."

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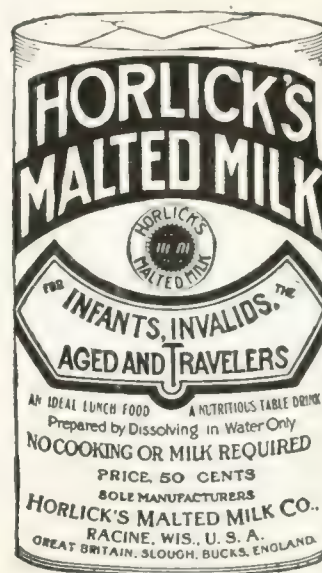
Abstracts

MEDICINE AND THE LAW.

Godman v. Maclean.

IN this action the patient sued a medical man for damages for alleged negligence in the use of cocaine. The drug was employed as a local anæsthetic in operating on a small cyst of the hand, a 5 per cent. solution combined with adrenalin being injected. After the injection of 5 minims it was found that the requisite anæsthesia had not been produced, and a further injection of 5 minims was made when alarming symptoms followed. An illness lasting $3\frac{1}{2}$ years, from which the patient had only partially recovered, was ascribed by the plaintiff to the effects of the cocaine, and this was apparently not in dispute. The only question, indeed, for Mr. Justice Salter who tried the case was that of the alleged negligence. The negligence, his lordship said, was alleged in three ways: (1) That it was negligent to use cocaine for hypodermic injection at all; (2) that too large or too strong a dose was administered; (3) that there was unskillfulness and carelessness in the actual administration of the second injection. It was contended that cocaine as used was obsolete, and known to be obsolete and dangerous. As to this, his lordship understood from the evidence before him that the risk was practically confined to persons abnormally sensitive to the drug, a peculiarity of the patient not discoverable beforehand. With regard to the danger of using cocaine the relative merits of other drugs for the same purpose and the correct dosage he was satisfied from the evidence called on both sides that the highest medical opinion was not in agreement. He had the evidence of chemists and of pharmacists that cocaine was still widely used, and that although the proportion prescribed was frequently less than 5 per cent., that proportion was used if the strength was not mentioned because it was the strength prescribed in the British Pharmacopœia. In fact, cocaine was included in the British Pharmacopœia for the purpose and in the proportions in which the defendant had used it, and he had the evidence of the defendant as to his own experience in the employment of the drug. A medical man could not be convicted of negligence for having administered a preparation agreeing both in strength and amount with the British Pharmacopœia, and of which, moreover, he had had satisfactory experience for many years. As to the suggestion that a small vein had been pierced in making the second injection, even if this had been so there was evidence before him that it was possible to inject cocaine into a small or even

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into a larger vein without danger to a normal person, such as evidence showed the plaintiff' apparently to be.

In giving judgment for the defendant his lordship expressed deep sympathy with the plaintiff. Costs were not asked for on behalf of the defendant, and a counter claim was not pressed, the plaintiff's counsel expressing her thanks to the defendant for his attitude in this. The defendant and the London and Counties Medical Protection Society, who supported him, are to be congratulated upon the conclusion of a professional experience which must have caused the former considerable distress and anxiety.—Lancet.

INDICATIONS FOR CAESAREAN SECTION

COURINAUD (*Thèse de Paris*, 1919, quoted in *Journ. de méd. et de chir. prat.*, May 25th, 1920) discusses the use of Caesarean section for conditions other than mechanical obstruction (by narrowing or tumours of the pelvis) to delivery. He says that Caesarean section is often justified (1) where an antecedent operation has been performed on the uterus—for example, hysteropexy or amputation of the cervix; (2) in case of vaginal stricture; (3) by uterine malformation; (4) as prophylactic treatment for imminent rupture of the uterus; (5) by rigidity of the cervix, primary, cicatricial, or syphilitic; (6) by certain grave maternal conditions. Among the latter eclampsia is stated not to be an indication; Caesarean section, often practised by the German school for this complication, is said to be accompanied by a greater maternal and fetal mortality than is treatment by dilatation (by means of a bag) and subsequent forceps delivery. The remaining maternal conditions justifying Caesarean section are: grave diseases of the heart, severe crises of asphyxia, or imminent death. As fetal indications are given the following: (1) excessive size of the fetus; (2) the rise of the fetal heart rate above 180 or its fall below 100, provided in either case that the os is incompletely dilated; (3) certain cases of malpresentation, especially by face, brow, or shoulder. Other possible indications are: low placental insertion, retro-placental hæmorrhage, and irreducible prolapse of the cord.—B.M.J.

ARTERIO-SCLEROSIS OF THE EYE.

THE ophthalmoscopic signs which point to high general blood pressure or to arterio-sclerosis are common ground to the ophthalmic surgeon and the physician. Clifford Allbutt, Osler, and others have thrown light on the conditions which cause the increased blood pressure. Ophthalmic surgeons, beginning with Marcus Gunn, have studied the oph-

thamoscopic signs of it; in recent years P. C. Bardsley and Foster Moore have amplified his observations. In the *British Journal of Ophthalmology* for July this subject is reviewed by P. H. Adams. Ophthalmic surgeons, as he says, see an enormous number of patients between the ages of 40 and 55 for the purpose of ordering presbyopic glasses, and serious responsibility is theirs if, when the symptoms are suspicious, they are content to order a pair of reading glasses without going further into the case. What, then, are the ophthalmoscopic signs which ought to receive special attention? (1) The width and brightness of the central white reflex from the arteries, a decidedly narrow and bright reflex constituting what is generally known as the silver wire appearance, but which Bardsley prefers to call copper wire—it is indicative of very high tension; (2) the indentation or obliteration of the veins where they are crossed by the arteries, showing hardness and loss of transparency in the latter; and (3) kinking of the veins at the crossings. These are early signs and may be considerably modified by measures directed to diminishing the blood pressure or eliminating the toxic cause of it. Signs of more confirmed disease are actual irregularities in the course of the retinal vessels—what is called beading is sometimes seen—patches of œdema, hæmorrhages, or patches of exudation. Such signs do not necessarily prove that serious intracranial disease is impending, but they decidedly point that way, even in the absence of albumin in the urine. This is shown by some statistics published by Foster Moore. The eye, it has been well said, is the window of the brain. According to Adams, the older the patient with arteriosclerotic changes the better the prognosis with regard to life, irrespective of the presence of albumin in the urine to a large extent, whilst the younger the patient the worse the prognosis, and especially so if albumin is present in the urine. With regard to the prognosis qua vision, except when the whole of the retinal circulation is stopped, as in thrombosis of the central vein, this depends chiefly on the extent to which the macular region is affected. In cases—and they are quite common—where gross signs of arterio-sclerosis are present but the macula remains free, excellent vision may remain. It is a remarkable fact that there is no constant relation between an excessive systemic blood pressure and a raised intra-ocular tension. Whatever the underlying causes of glaucoma may be, a general increase in the arterial blood pressure is not an essential part of the disease.—Lancet.

Quotations from Doctors:

No. 6

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H. BRYN (*Tidsskrift for Den Norske Laegeforening*, May 15th, 1920, has examined 834 persons in two mountainous districts in Norway with respect to the colour of their eyes. He found that if both parents and all the grandparents had blue eyes without any brown pigmentation, all the children were blue-eyed. When both parents were blue-eyed, while some of the grandparents had eyes with brown pigmentation, 10 per cent. of the children had eyes with brown pigmentation, while the rest were blue-eyed. When both parents had eyes with brown pigmentation, 25 per cent. of the children were blue-eyed and the remainder had eyes with brown pigmentation. When one parent was brown-eyed and the other blue-eyed, the number of blue and brown eyes was equally divided among their children. When both parents had "mixed" eyes, 25 per cent. had blue eyes, 25 per cent. brown eyes, and 50 per cent. "mixed" eyes. But this rule did not apply to all types of "mixed" eyes. If both parents had blue eyes with a well-defined brown ring round the pupil, all their children exhibited the same type of "mixed" eyes.—B.M.J.

INJECTION OF ALCOHOL INTO THE GASSERIAN GANGLION.

H. PICHLER (*Wien. klin. Woch.*, May 20th and 27th, 1920), who has treated fifty-one cases of trigeminal neuralgia by injection of alcohol into the Gasserian ganglion, is convinced that cure of the disease is almost certain by this method. He points out, however, that the operation is by no means simple or easily carried out, but requires much practice. As it is not altogether devoid of danger, it should not be performed on out-patients. It should be reserved for those cases in which all other methods have been tried in vain, and should be regarded as a rival operation to extirpation of the Gasserian ganglion, for which it can almost always be substituted. Local causes must first be recognized and removed. A careful examination, therefore—including the use of x rays—must first be made of the teeth, nose, and eyes. The most important and sometimes inevitable complication is keratitis neuroparalytica. For this reason the injection must be preceded by a careful examination of both eyes. It is not advisable to anaesthetize the ganglion with cocaine before the injection of alcohol. Owing to the danger of keratitis the first branch should be spared if possible when it is not affected by the disease. The dose of alcohol required varies considerably, but is not infrequently ten or even fifteen times as much as Härtel's maximum dose of 1 c.cm. The injections may be repeated as often as is desired.—B.M.J.

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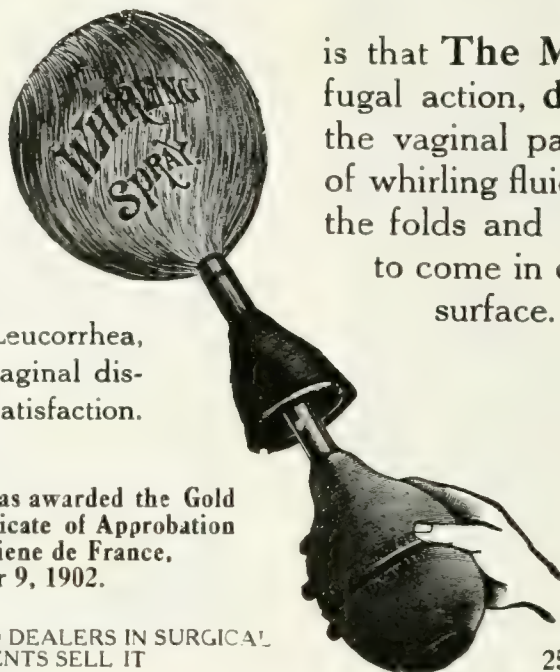
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